ptember-October, 1956

SOCIAL SCIENCES

POLICE

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FEATURING

- Photography's Place in Law Enforcement Today
- Elements Necessary for an Arson Conviction
- Proper Equipment for an Emergency Ambulance
- Education of Police Personnel to the Use of the Polygraph
- Departmental Organization of the Railroad Police
- Rating and Testing Policemen
- The Delinquent and the Value
- Obesity (The Overweight Problem)
- In Case You're Traffic Minded
- Vision and Driving Hazards

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Journal Devoted to the Professional Interests of All Law Enforcement Personnel

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Speed attained in 3 test runs of ¼-mile from 50-M.P.H. start (80-M.P.H. necessary to qualify)		
80, 81 and **80** M.P.H.	**82, 83** and **82** M.P.H.	**86, 84** and **87** M.P.H.
Speed attained in 3 test runs of 1-mile from standing start (100-M.P.H. necessary to qualify)		
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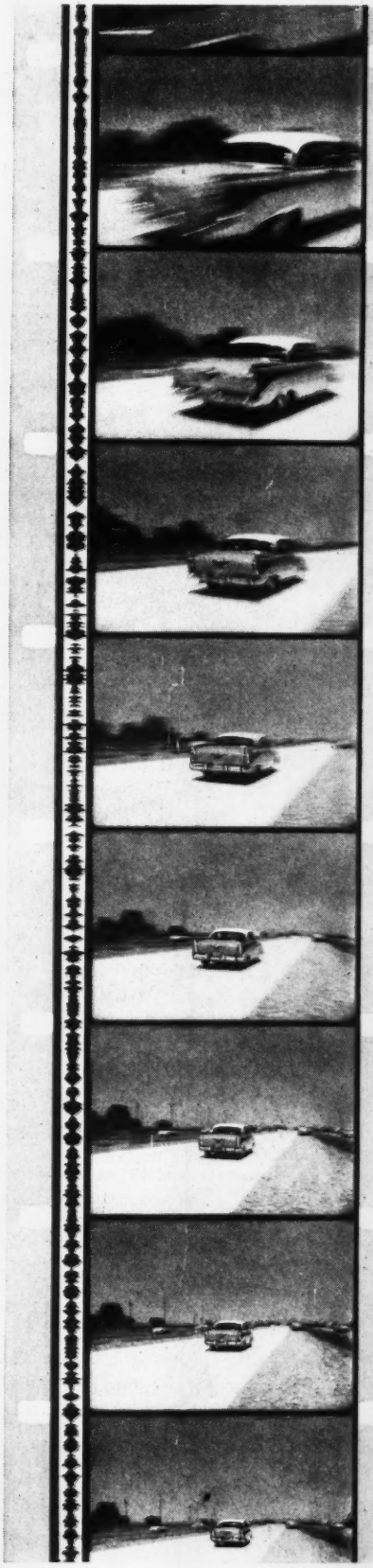

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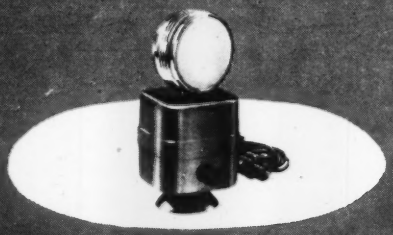

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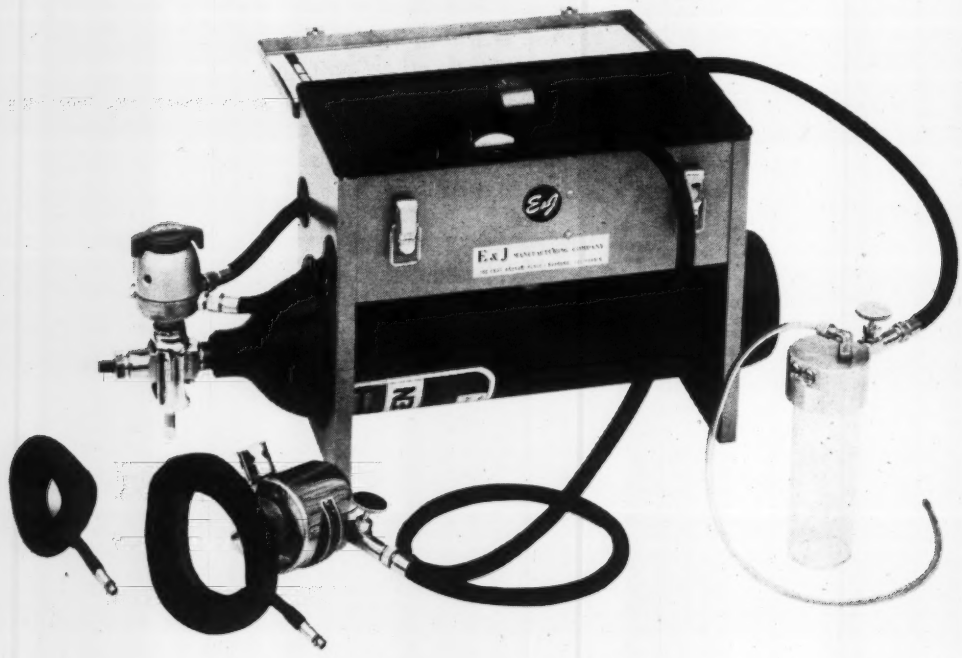

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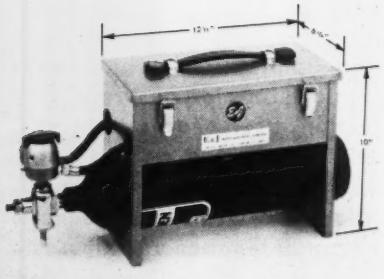

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A Journal Devoted to the Professional Interests of All Law Enforcement Personnel

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IN CASE YOU'RE TRAFFIC MINDED. Original articles and timely information about our Number 1 problem. See page 58.

IT'S NEW! A preview of new products, techniques, and materials for use in law-enforcement. See page 65.

FROM THE EDITOR. An exchange of ideas, comments, suggestions, and information, designed especially for the reader. See page 66.

Cover Picture

Albert J. Tuohy, Director of Security, Republic Aviation Corporation, instructs officers at a typical police pistol range. *Upper photo:* Colt silhouette target, showing vital and crippling areas. *Center photo:* Demonstration of correct stance for combat firing. *Lower photo:* Officers in firing position at the pistol range. (Courtesy, Republic Aviation Corporation. From Davis, John R.: *Industrial Plant Protection.*)

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VOLUME I
NUMBER I

1956

SEPTEMBER
OCTOBER

AUGUST VOLLMER—*A Symbol of Values*

Professional competence, human understanding, and character . . . these August Vollmer had in impressive proportions.

This selfless man viewed the police profession as a high instrument of civil policy and realistically insisted that all officers should become respected and recognized individuals and not merely be badged, badgered, and known for a police serial number. He well understood the qualities of the police officer and to him he offered senses in protection and in purpose that these professionals had too seldom had. As he served with all humility of mind, he was ever on guard against inconsiderate and unfeeling treatment.

As humanist, friend, and chief; as lecturer, administrator, and world-wide consultant . . . he was outstanding in native wisdom, in skill, in steady convictions, and splendid and undeviating in courage and integrity. Ever he was willing to listen to and to discuss problems as many of his juniors will testify . . . all these as equals were treated . . . and the giving to them of his knowledge and experience was to him and to them of vital pleasure in that his discerning encouragement and spiritual qualities meant so much. While a formidable critic, his criticisms were based upon a high sense of duty vigorously opposed to cant.

Pioneering across and up and down the land, he brought together and made clear the advantages to be derived from breadth of vision that integrated political, economic, and ideological factors in such felicitous proportions as to generate for many states and cities new police resources and strengths. His ever aim and firm objective was to hold fast to restoring the sentiment of decency in the country.

To 923 Euclid Avenue in Berkeley came many kinds of men to profit from his superbly clear thinking and emphatic teaching in police work and for his stimulating fresh interest in the arts, in great books, in music, in gardening, and in forestry. As he made men bloom with new strengths and flourish for the good of the land, so behind the high hills of Berkeley, Oakland, and Richmond his vision and boundless energy caused a desert to grow into one of the great California public parks. So was his power of distinguishing between the trivial and the important, the principle and the detail, that up to his last days he was an essential consultant and counsellor. As a friend to men in all parts of the world, he remains an unforgettable companion of the first order, and for the many he stands out as a symbol of world police leadership values.

POLICE, for which he planned to prepare an introductory editorial, pays homage to one who has served so exceedingly well in such manifold ways and in its publication, the publisher and editorial staff subscribe to the ideals of a man who has left such an indelible impression on the course of time. It is the opportunity to co-operate in a more complete realization of these ideals that has persuaded the publisher to publish POLICE, toward the end that professional men and women may successfully engage the opposing forces in our cities and communities and in the process, cultivate an enlightened public opinion that will sustain their efforts.

Charles C Thomas
O P Thomas
Payne E L Thomas

AUGUST VOLLMER 1876-1955

Give me high noon, and
Let it then be night.
—ANONYMOUS

Architect of some of the greatest contributions of the present century to crime control, August Vollmer reached the zenith of a professional career in which he became known the world over as a social scientist who pioneered the application of scientific method to police service, and to the total field of criminal justice administration.

The Vollmer system of police administration attracted national and international attention, illuminating the way for an emerging profession and launching the American police services into a period of transition, the full implications of which are not yet generally understood.

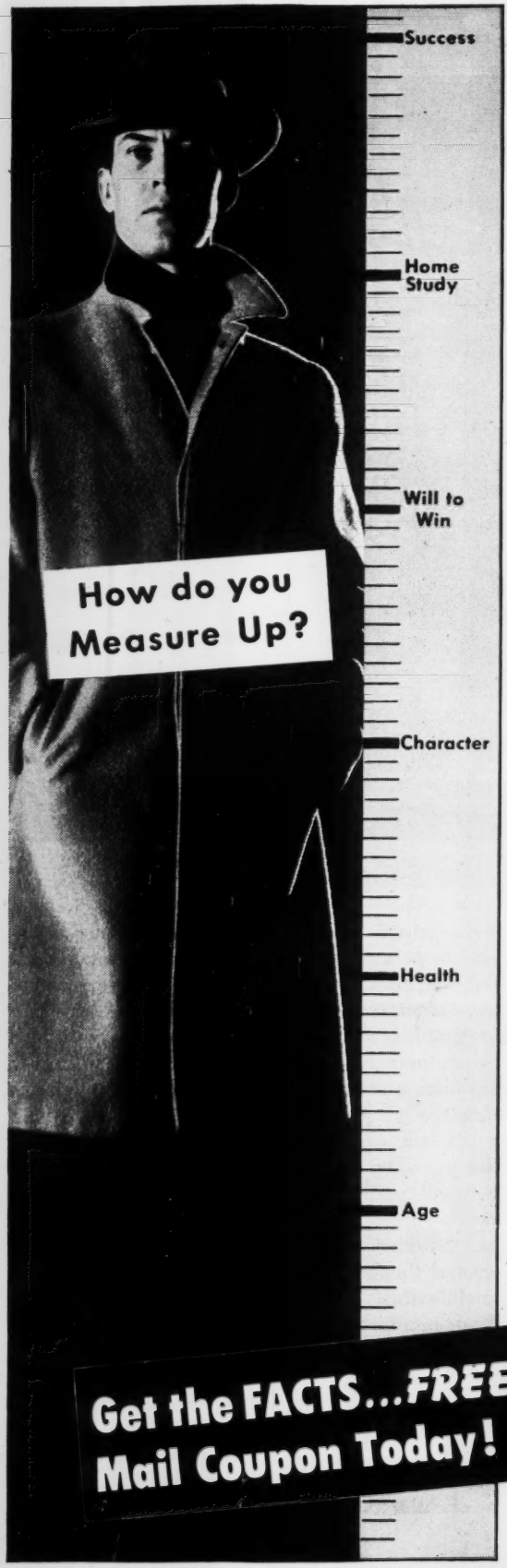
The scores of innovations that he introduced have since become standard practice in the American police services and in civilized countries throughout the world. An inventory of these contributions provides a factual account of the march toward professionalization in this branch of the public service during the past three decades.

Genius that he was, he perceived the futility of relying upon jails and penitentiaries in an altogether punitive approach to crime and the criminal. Starting with the central thesis that the burglar, automobile thief, prostitute and thug did not become that way suddenly, he turned the attention of the field to the promise of prevention. It was his view, now confirmed by research, that the police and other social institutions in the community must address their attention to the vast army of children who are today serious deviates in mental, physical and temperamental traits and who will soon become the adult population with which the machinery of justice must spend its time and energies.

Those of us who had the privilege of working under the inspired leadership of Chief Vollmer in the Police Department at Berkeley, California, join with his friends all over the world in the dedication to him of Volume I, Number 1, of this professional Journal, to the publication of which he gave his wholehearted endorsement.

It is not at all unlikely that the pages of the Journal will reflect through the issues and the years ahead the philosophy of a man who gained for himself a permanent place in the Annals of the Police.

THE EDITOR.



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Photography's Place in Law Enforcement Today

By Harris B. Tuttle

EDITOR'S NOTE: *Harris B. Tuttle, lecturer, writer, and consultant on law enforcement photography for the Eastman Kodak Company, has been associated with the company since 1918. A native of Clarkson, New York, Mr. Tuttle attended Brockport Normal School; Mechanics Institute, now Rochester Institute of Technology; and the University of Rochester Extension School.*

Mr. Tuttle joined the Kodak staff on August 18, 1918, as a member of the electrical department at Kodak Park. From there, he was transferred to the Kodak Research Laboratories, and, in 1926, he joined the advertising department where he conducted all of the demonstrations of 16mm and 8mm films. Since January, 1938, Mr. Tuttle has been in the sales department as photographic correspondent, lecturer, and consultant in law enforcement photography.

He is a fellow and member of the Society of Motion Picture and Television Engineers, fellow and life member of the Royal Photographic Society of Great Britain, fellow and member of the Biological Photographic Association of America, fellow and honorary life member of the Photographic Society of America including the Technical Section and the Motion Picture Division, and a fellow and member of the Amateur Cinema League.

RECENTLY I asked a law enforcement officer that, if he had to give up all of his tools except one, which one would he keep, and his answer came quick and sure—"my camera."

Yes, I guess we will all agree that cameras and photography play a major role in tracking down and convicting criminals today.

The interesting point is that as other scientific advances are made in the investigation field they are reflected directly in, and produce advances in, photography. As a result, the use of photography in law enforcement has made greater progress in the last ten years than it did in the previous fifty.

For example, while wire photo devices were originally invented to send news pictures for use in newspapers, they have found ready application in transmitting pictures of wanted criminals and their fingerprints from one city to another by telephone wires. Telephoto or "Speed Photo" can be used to positively identify a person within an hour. This in itself is a great advance, for a suspect, if innocent, needs to be held in custody only long enough to establish his identification.

When one mentions photography in police work the average person associates it with the making of mugging shots front and side view which are and have been used on criminal identification cards for years. At one time this was the major use of photography in the investigative field; however, today practically every branch of photography is and can be used in discovering, recording, and preserving evidence.

Today the modern identification officer is just as apt to make an x-ray picture of a questionable package to reveal its contents, or to make a spectrogram of a particle of paint as he is to make a mug shot.

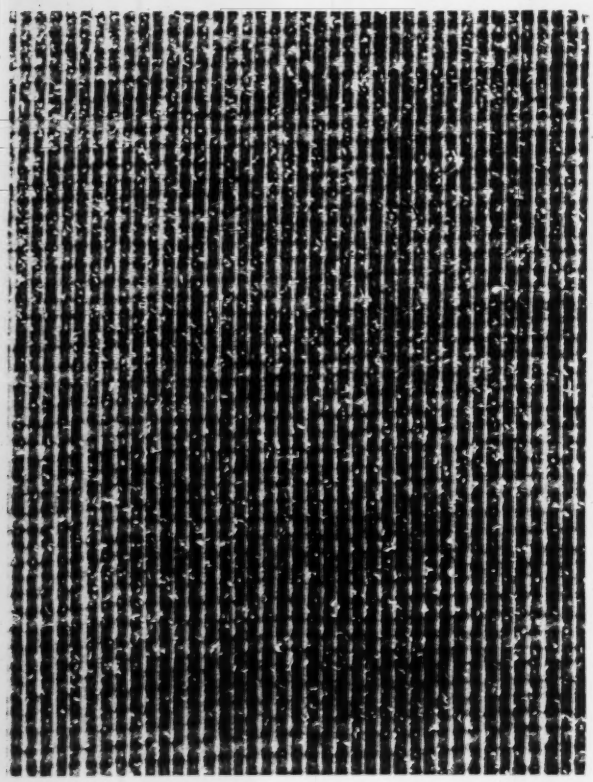
Photography provides a factual record of the scene of a crime or accident and if the case does not come to trial for some months, the photograph made at the time of the crime will refresh the memories of the witnesses.

X-rays of time bomb designed to explode when cover is removed. X-ray shows location of wires connecting circuit between batteries, switch and dynamite.

Address: H. B. Tuttle, Consultant, Law Enforcement Photography, Eastman Kodak Company, 343 State Street, Rochester 4, New York.

It is important to the police photographer to make pictures which include only areas and material relevant to the scene of the crime. It is important to him to take such pictures in a lighting and at an exposure that will reveal all the details visible to the naked eye at the time the photograph is taken.

Perhaps one of the most important things is to make enough pictures. It is better to take twenty-five photographs of the scene of an accident, and only use one or



Soft x-rays of trousers showing particles of aluminum filings imbedded in fabric.

two, than to make one or two that prove unusable and wish you had twenty-five or thirty from which to select the best picture for presentation in court. Photographs of accidents and homicides should be made just as soon after the occurrence as possible. Once bodies and debris have been removed, the scene is changed, and one can no longer make pictures of the original conditions.

More film is used today to photograph accidents and homicides and other evidence material than is used for making the conventional mug shots, and today the police photographer has to know a great deal about photographic technology in order to make all types of pictures under all kinds of conditions, and after printing these pictures; he must be qualified as an experienced photographer to appear in court as a witness. I believe what is expected of a police photographer is best exemplified by an ad recently seen in a newspaper which read:

WANTED—Police Photographer—All-around man; must have knowledge and experience in general photography including darkroom work; proficient use of all standard makes of cameras—35mm, 4 x 5, view cameras, copy cameras, fingerprint cameras, etc.; use of filter techniques, photography in ultra-violet and infrared regions; orthostereoscopy; photomicrography, macrophotography; color work—developing and printing; radiography in both hard and soft x-ray regions; gammagraphs; cinematography, and projection work; must be able to qualify as expert witness in major court cases; day and night work.

In the past year improvements have been made in infrared photography techniques. A new high speed infrared film was announced by the Eastman Kodak Company which is about ten times faster than the older type of infrared film which has been available for several years.

With this new film, 35mm still pictures or 16mm movies can be made in almost complete darkness. It is still necessary, of course, to use an infrared radiator the source of which may be slightly visible to the naked eye.

The introduction of a high speed infrared film makes it possible to take either still or motion pictures of intruders without their being aware of it. In connection with this film it might be well to mention here that a new type of heat sensitive cell has been developed in the Kodak laboratories known as the Ektron Detector which is 10,000 times more sensitive than similar devices now in use. This cell has its peak sensitivity in the invisible heat waves of the infrared. It is also highly sensitive to all parts of the visible light spectrum.

With this device it is possible to trigger cameras or burglary alarms and thus make a still picture or motion picture, or to sound an alarm without the intruder being aware of what's happening.

There are, of course, a great many variations in conditions where such devices might be used but in general the device works as follows: The Ektron Detector is mounted in an enclosed box with an opening at one end. Over the opening is placed a piece of opaque black Plexiglass. The Plexiglass absorbs all visible light but transmits only the infrared radiations.

A small electric lamp is placed in the box and a lens focuses its light on a reflector target at a distance up to about thirty feet away. The target is an infrared reflector which reflects the infrared beam back to the box through another lens which focuses it onto the Ektron Detector. The necessary transformers, amplifiers, etc., are mounted in the box so that all of its working parts except the target are an integral part of the installation.

This type of detector can be used either with or without cameras and can be made to send an alarm signal to a night watchman—a police or fire department or any other receiver. It can be installed in banks and would light a signal on the communication switchboard at police headquarters the instant an unauthorized entry is made, not when it is over and the intruder has fled. Word

Fingerprints left by burglar in fresh putty when opening window. Photographed with cross lighting from one side. Photo, courtesy Chief Patrick McCormick, Allegheny County Detective Bureau, Pittsburgh, Pennsylvania.

would be flashed in the area that a crime was occurring and prowl cars could be on the way to the bank before the robbery was thirty seconds underway. With this type of alarm system the police could be at the scene of the crime to greet the offender as he leaves the bank. The same device can be used in cash registers or as a security protection device where such protection is required.

The important point is that a camera can be attached to this circuit and when loaded with infrared film could make a picture of the intruder in complete darkness, or in the available light normally used to illuminate banks, liquor stores, etc.

The high speed Tri-X Film for use in 35mm and 16mm cameras and the Kodak Royal Pan which is the counterpart of the Tri-X in sheet film is another of the new developments which makes it possible to make snapshots by ordinary room light without the use of flash.

Motion pictures are already playing an ever increasing role in the law enforcement field and it is probably only a matter of time when motion picture equipment will be a standard tool in every law enforcement agency.

During the past ten years, there has been a tremendous increase in the use of motion pictures in both business and industry. Since the work of law enforcement agencies is really big business today, it is only logical that motion pictures will be used increasingly in many ways by police departments and other law enforcement agencies all over the world.

Let us stop for just a moment and consider why films are important to business and industry.

1. Trainees learn up to 35% more in a given period of time.
2. Facts learned are remembered up to 55% longer.
3. Films increase trainee interest.
4. Training is made uniform.
5. Films build morale through more complete understanding.
6. Films save time and training and increase efficiency.

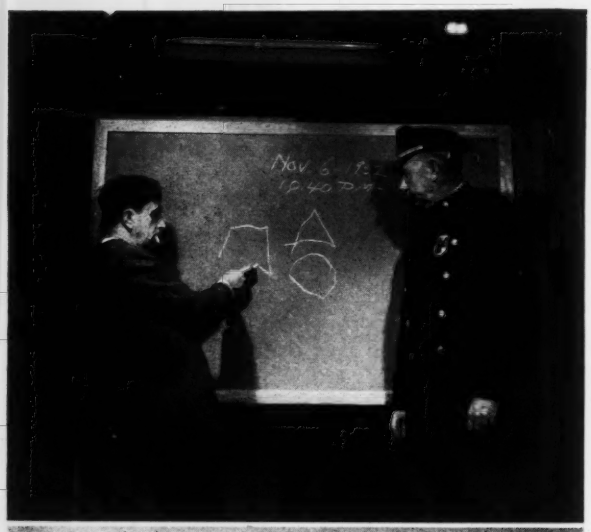
Certainly if through films trainees in other businesses learn up to 35% more in a given period of time, and remember 55% longer, it can be assumed that these same figures will apply in the law enforcement field.

Films can be made to be used in training new policemen in the right and wrong way to use firearms and other equipment, the right and wrong way to handle prisoners, the right and wrong way to direct traffic, etc. This latter point can be covered effectively by photographing on motion picture film the traffic problems that are peculiar to any given area in any city. A trainee can look at films made of an experienced traffic officer handling traffic, and after studying them, go out and do a much better job than he would otherwise do from merely being told about the situation on the blackboard or by use of table-top models.

The technique of making fingerprints is also very important and films on this subject can be made and loaned to small police departments or departments in out of the way places so that they can have the latest and best information on this type of work. Here again, the use of such trainee films introduces uniformity into the technique used by all law enforcement officers.

The FBI has demonstrated very forcibly the importance of uniform training of personnel. This same uniformity can be obtained in any local police department in any American city merely by the making of films of an approved procedure and then training all of the men to follow in general the approved technique.

Another important use in local governments for the motion picture camera is in making traffic surveys. Many of the larger cities throughout the country have already had motion pictures made of their traffic bottlenecks, and through the study of these films over and over again, they have been able to discover the causes of the bottlenecks and in some cases eliminate them, and in still other cases to alter the conditions so that traffic flow was greatly improved. Another important use for the movie camera would be in recording the activities of the Civil Defense Program. Some films have been made by gov-



ernment agencies on what to do in case an atomic or hydrogen bomb is exploded in your vicinity; however, these films are general and apply to conditions on a large scale.

Each city should have films made on the Civil Defense Program as it relates to the particular city and the geographical and physical characteristics of the areas in which trouble might occur. By photographing all of the practice sessions conducted by the Civil Defense Program it would be possible to review the films afterwards and discover flaws in their present methods, and make the necessary changes to improve the overall plan.

A number of police departments are making movies of drunken drivers and very successfully too, for now the arresting officer can have photographic evidence to back up his testimony. The interesting point is that when the drunken driver has sobered up, and he and his attorney see the movies on the screen, the attorney goes into court and pleads his client guilty. To the author's knowledge, such movies have been shown in court only on one occasion. This can result in a tremendous saving of court time and if used wisely will produce a higher percentage of convictions.

Motion picture cameras with single frame attachments are being used to make single frame still pictures of thefts and other crimes where a number of exposures must be made in rapid sequence. This can be done in either artificial light or by use of the high speed infrared film.

In Australia, motion pictures are made of traffic on bad curves and anyone crossing the double white line is duly fined. The camera is started automatically when the car wheel squeezes an electric contact cable placed between the two white lines and stops when the car returns to its proper lane.

Recently a large number of thefts by breaking into parked cars aroused the Cleveland, Ohio, Police Department. Suspects were watched by a stake-out and when they broke into cars their every action was filmed with a movie camera. The stake-out called on radio to a prowl car and an arrest was made. When the thieves were shown the movies of themselves in action they realized that they really had been caught in the act.

The possibilities for getting motion picture evidence

(Upper) The arrested driver is asked to perform a few simple tests for the movie camera to record lack of coordination. Photo, courtesy of Chief William A. Winfield, Rochester, New York Police Department.

(Center) Close-up view of drunken driver reveals general condition at time of arrest. Photo, courtesy of Chief William A. Winfield, Rochester, New York Police Department.

(Lower) Set for making movies of drunken drivers. Photo, courtesy of Chief William A. Winfield, Rochester, New York Police Department.

are almost unlimited, especially now with the new infrared and Tri-X movie film. For with this film, it is possible to use the film at night and make movies by the light from regular street lamps, or other normal mazda illumination.

It has been very evident the past few years that there is a sudden awakening to the possibilities of color photography in the law enforcement field. The author is of the opinion that all evidence pictures for record purposes or for use in court should be made in color. We see the things about us in color; therefore, the natural way to photograph such things is in color. If color photography had been invented first and if color pictures had been accepted and used in courts for the past forty or fifty years, it would be much more difficult now to get black and white photography accepted than it is to get color accepted today.

I believe the practice of judges permitting defense attorneys to question the photographer who made the picture concerning his technical knowledge of color processes and on the psychological aspects of seeing color is unsound. It is not necessary to know how to repair a typewriter to learn to run one or to know how an IBM machine sorts cards to operate one. Likewise it is not necessary to know all of the science of color photography to make good factual color pictures.

Color photography is just as easy and just as certain today as black and white photography. If the color slide, or color movie is a reasonable record of the original subject as it appeared at the time, it should be admissible as evidence.

In any event, nearly all of the large police departments in the United States are experimenting with color and many are using it routinely every day. For example the Nassau County Police Department, Long Island, New York, is making all of their mugging pictures on 4 x 5 Ektachrome Film then making 8 x 10 color prints on suitable color printing materials. The Washington, D. C., Police Department has found that since a large percentage of their arrests are of colored people, that color photographs (mugging pictures) gives them a better evaluation of all colored people than was ever possible in black-and-white photography. Many other Police Departments, including Denver, Sioux City, Pittsburgh, Philadelphia, Los Angeles, Buffalo, and Rochester, New York, just to name a few, have all been active not only in the use of still color photography but also in the use of color motion pictures as well.

I believe that once judges and lawyers see the many advantages of good color pictures, that the use of color photography in police work will expand very rapidly and in a few years all important police record pictures will be made in color.

Today we stand at the threshold of a new era in the law enforcement field, principally because photography offers a tool for recording in one way or another the evidence necessary to bring the criminal to justice.

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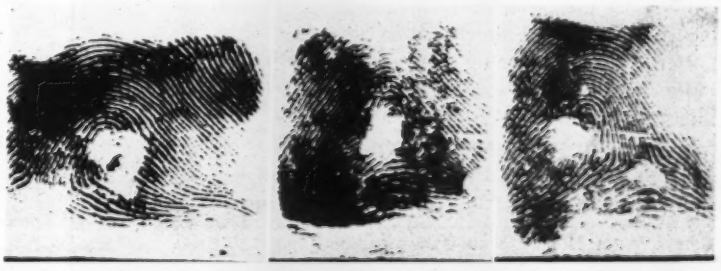
that fingerprints are changed intentionally in rare cases? John Dillinger had all ten fingers mutilated in an effort to conceal identity—the attempt was a failure. Location of scars would lead one to believe a deliberate attempt was made to eradicate cores and deltas. (From Scott, W. R.: *Fingerprint Mechanics.*)



Elements Necessary for an Arson Conviction

By William H. Hopper

EDITOR'S NOTE: *The author is a Special Agent for the Mutual Investigation Bureau, Chicago, Illinois. He received his B.A. and LL.B. from Tulane University; and has taken special courses in police administration at Michigan State University. He has lectured on Arson Seminars at Purdue University, University of South Carolina, and New Orleans, Louisiana. He has also contributed articles on arson investigation to the* Journal of Criminal Law, Criminology and Police Science.

THE three essential elements necessary for an arson conviction are: (1) that a burning occurred; (2) that the burning was the result of a criminal agency, and (3) that the accused was responsible for the criminal agency. In order to expain these elements this article is divided into four parts: Burning; Criminal Agency; Responsibility; and Conclusion.

BURNING

In proving that a burning occurred it must be shown that the burning corresponds to the particular statute involved. In other words, if the charge is that the accused did burn a dwelling house, then it must be shown that the particular dwelling house did, in fact, burn. In some cases it is even necessary to show that the burned structure was actually a dwelling house.[1] Although the actual burning of a structure does not appear to be particularly important as far as having to prove it in court is concerned, it must be remembered that a court has to have jurisdiction. Thus, it must be shown that the burning occurred,[2] and that it occurred within the jurisdiction of the particular court.

The prosecution can use several different methods in proving the burning, but perhaps one of the best ways is to use the testimony of firemen. Testimony of other witnesses, including the one who discovered the fire, may also be used in establishing this point before the court. The use of photographs and diagrams is an excellent way to supplement the proof of the burning. Also, the court and jury might make a direct visit to the scene. Although the latter is time consuming and entails certain expense, it would seem to be an excellent method where some of the facts concerning the burning are in dispute. As arson investigators are well aware, burning does not necessarily connote a total destruction. It is sufficient if there was any burning or charring of the structure involved—however slight.[3] In most jurisdictions the crime is the same irrespective of the degree of burning—at least in theory.

Incidentally, burning is the first step in proving the corpus delicti of the crime of arson. Thus it is easy to understand how failure to prove this point could result in having the case thrown out of court. Actually, this is the easiest step or element of the crime to prove; but just because it is easy, the importance of proving the burning must not be overlooked by the arson investigator. If the investigator has competently collected and preserved his evidence the prosecutor will be able to present an array of evidence to overcome this first hurdle in the prosecution of an arson case.

CRIMINAL AGENCY

Proving that the burning was the result of a criminal agency is the second element necessary for an arson conviction; and it is also the second step in proving the corpus delicti. In brief, the corpus delicti of any crime consists of proving that a crime has, in fact, been committed. Without this proof there cannot be a conviction. The investigator should always remember that he has to overcome the presumption of an accidental fire. In Hurst v. State[4] the court stated: "It must appear from either direct or circumstantial evidence, beyond a reasonable doubt, that the fire was of incendiary origin. . . ." Of course, the presumption of an accidental or providential cause may be rebutted with circumstantial evidence.[5] Generally speaking, there is little or no direct evidence in arson cases.

It will be observed that all of the elements of the crime of arson tend to overlap, and thus to support each other. For this reason it is generally not possible to show a sharp line of demarcation between them. For example, the evidence which tends to prove the incendiary nature of the fire is often the same evidence which tends to prove the accused's responsibility for the criminal agency.[6]

Confession and Evidence

In those cases where a confession is obtained, the cor-

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[1] People v. Losinger, 331 Mich. 490, 50 N.W.2d. 137 (1951).
[2] Jefferson v. Sweat, Fla., 76 So.2d. 494 (1954).
[3] State v. Braathen, 77 N.D. 309, 43 N.W.2d. 202 (1950).
[4] 88 Ga.App.R. 798, 78 S.E.2d. 80 (1954).
[5] State v. Perras, 117 Vt. 163, 86 A.2d. 544 (1952).
[6] People v. Lueder, 3 Ill.2d. 487, 121 N.E.2d. 743 (1954).

roborating evidence necessary for a conviction does not usually have to be as strong as in those cases without a confession. In other words, independent evidence may allow a consideration of the confession; and when this independent evidence and the confession are considered together there may be sufficient evidence of probative value to warrant a conviction.[7] This may well be true even though the independent evidence alone would not be sufficient proof of the corpus delicti. In connection with confessions it should be remembered that a motive is not sufficient corroboration. Although the motive may be used as another circumstance in presenting the independent evidence, there must also be other independent evidence if the confession is to be admitted in evidence.

A motive is not an element of the crime of arson. In Hall v. State,[8] the accused in an arson case was convicted solely upon evidence of motive and intent. The judgment was reversed because there was no proof of the corpus delicti—that the fire was of incendiary origin. This does not mean that the investigator should ignore the motive. On the contrary, he should make an effort to determine the exact motive in each case—for it is a circumstance, if not an element. Also, the prosecutor always wants to know the motive—probably because the average lay juror thinks it is necessary. If a conviction is to be secured the prosecution must convince the jury as well as the court.

Actually, what is necessary to prove the criminal agency—that the structure was set afire by some responsible person? It is impossible to list every bit of evidence which might be used to prove this element. However, in general, any evidence, direct or circumstantial, which tends to prove beyond a reasonable doubt that the fire was actually set is sufficient. It is obvious that the quality and quantity of this evidence would vary widely. For some examples of sufficient evidence consider the following cases:

People v. Burrows:[9] Three separate fires; with charred paper in the hole burned by each fire; household and personal effects removed; a partial list of furnishings found in accused's purse after fire; and accused had opportunity to notify the fire department but failed to do so.

Boroquez v. State:[10] Accused was intoxicated; accused was seen carrying personal effects from room where smoke was pouring out; his clothing had odor of kerosene when arrested; and the room had odor of kerosene at various places.

Whatley v. State:[11] An automobile was heard to pull away shortly before fire; three separate fires; dresser drawers pulled out and stuffed with kerosene soaked papers; holes cut in walls; all windows were covered with shades, bed spreads or sacks; and there were no personal effects in house.

People v. Adams:[12] An admitted accomplice testified that fire was set in two different places; a Special Agent of the NATB testified that the fire around motor was separate from the interior fire—thus corroborating the testimony of the accomplice.

Hurst v. State:[13] Accused and wife had separated; on night of fire accused was seen standing near house; his footprints were

[7] State v. Guastamachio, 137 Conn. 179, 75 A.2d. 429 (1950).
[8] 155 Tex.Cr.R. 235, 233 S.W.2d. 582 (1950).
[9] 119 Cal.2d. 753, 260 P.2d. 137 (1953).
[10] 158 Tex.Cr.R. 568, 258 S.W.2d. 318 (1953).
[11] 37 Ala. 706, 75 So.2d. 182 (1954).
[12] 119 Cal.2d. 445, 259 P.2d. 56 (1953).
[13] supra.

A smoky fire. Have oxygen ready.

Under the influence of heat many chemical elements combine to form new substances, while other elements are simply liberated. It is these substances and elements that result in smoke and gases. The dark color of smoke is due to carbon particles suspended in the air. The only danger from these particles is an irritation to the eyes. However, there are many different chemicals present in this smoke, in addition to the carbon that may cause it to be poisonous. (From Young, Carl B., Jr.: *First Aid and Resuscitation.*)

identified; he had asked three different witnesses for matches before receiving any; two oil lamps which had been in house were found in a field after accused's tracks had been traced to this field; and the accused confessed.

State v. Perras:[14] Accused had worked in a cafe but quit because of an argument; he had threatened to put owner out of business; shortly before fire a witness saw accused run down alley behind cafe; a piece of burlap, a cigarette stub, and a partly burned match folder were found at point of origin; and accused denied being behind cafe.

Please note that there was no eye witness to the act of setting the fire in any of the above cases. Finding and producing in court an eye witness to an incendiary fire is almost as difficult as finding the proverbial needle in a haystack. Unfortunately, quite a few prosecutors, and some courts, as well as investigators still believe that it is necessary to have an eye witness. And even a lot of those who know that it is not essential to have an eye witness still believe that it is essential to place the accused in the vicinity of the fire. Of course, if this can be done it makes a much stronger case; but to give up the investigation and fail to prosecute just because the accused cannot be placed in the vicinity of the burned structure shows a lack of foresight and knowledge of what constitutes the crime of arson.

It is impractical for a team of chemical engineers to attend each fire and determine the types of gas present. It is impractical for a doctor to attend every fire and examine every man who coughs due to the smoke encountered. Therefore, every fireman, policeman, and first aid man should have a great respect for the potential hazards of smoke and fire gases and should protect himself accordingly. Failure to do so may not only make him a casualty but a fatality. (From Young, Carl B., Jr., *First Aid and Resuscitation.*)

Fire Not Accidental

One of the best methods for proving the criminal agency, if there is no strong evidence that the fire was of incendiary origin, is to prove the lack of an accidental fire. This elimination of accidental or providential causes of fire should always be uppermost in the mind of the investigator, for if such causes can be eliminated he will be very close to proving the criminal agency.

Note what the court had to say concerning the criminal agency in Ricketts v. State:[15]

No universal and invariable rule can be laid down as to what would amount to proof of the corpus delicti. Each case depends upon its own peculiar circumstance. But in every case of arson two fundamental facts must appear: first, a burning; and second, some criminal agency which caused the burning.

In general it may be stated that if the arson investigator discovers, collects and preserves any evidence of an ignition device, which is foreign to the premises, he will probably have sufficient evidence to establish the criminal agency. This ignition or incendiary device may be almost anything, such as: a burned candle; a clock device; deliberately shorted electrical wiring; telephone bell device; et cetera. Also, if evidence of flammable liquids, foreign to the premises, are found; or holes cut for ventilation; or the absence of personal effects, or furnishings; or separate fires; or other similar indicators of an incendiary origin, there would probably be sufficient evidence to prove the criminal agency.

What usually happens is that only a partial indicator of the criminal agency is discovered. These partial indicators might be unusual odors, uneven charring, undue rapid burning, and flames which were difficult to extinguish. Thus it may appear that the fire was of an incendiary origin, but there is just not a sufficiency of physical evidence with which to prove this point. In these cases other circumstances must be used in order to establish the corpus delicti. Thus, when the partial indicator of a criminal agency is considered along with other circumstances there is often enough to establish the corpus delicti—and allow the admission of other evidence which will connect the accused with the crime. A few examples of what these other circumstances might consist of would be: bad financial condition; reason to move; domestic difficulties; threats; the accused seen in the vicinity of the fire; accused having opportunity; accused

[14] supra.

[15] 192 Tenn. 649, 241 S.W.2d. 604 (1951).

having sole possession of keys to building; lack of an accidental fire; and lack of any other reasonable explanation for the fire.

Safeguard Evidence

Often in the investigation of a particular arson case there will be sufficient evidence of the criminal agency; but, unfortunately, it will be overlooked, not properly cared for, or just misused or misapplied by the investigators. As an example take the few instances where fingerprints are available. The arson investigator finds fingerprints so seldom that he tends to forget to search for them, or to have a fingerprint expert make a search. It would be a rare case where an arsonist used gloves for the simple reason that he expects everything to burn up; or he is usually not a professional criminal and consequently would likely forget this technique of hiding his prints. Contrary to popular belief, fingerprints may sometime be secured from metal, glass, plastic, or even wood which has been subjected to some heat. And in the cases where a can or jug was left in the building which did not completely burn it is often possible to lift fingerprints. Even if the firemen have handled the container it should still be checked for fingerprints, and an elimination of their prints made. Some arson investigation departments are so thorough that a fingerprint check is routine with them, while other departments ignore this procedure entirely. In connection with fingerprints, a search should also be made for footprints, tool marks, indication of forced entry, and condition of the locks on the doors.

In proving the criminal agency beyond a reasonable doubt consideration must be given to what a reasonable doubt means. The court, in State v. Guastamachio,[16] said: "Proof beyond a reasonable doubt does not require proof beyond a possible doubt." For another definition consider what the court said in State v. Levesque:[17]

> It is a doubt which a reasonable man of sound judgment, without bias, prejudice or interest, after calmly, conscientiously and deliberately weighing all the testimony, would entertain as to the guilt of the prisoner.

It may be true that the "reasonable man," like the "average man," does not really exist except as a compilation of statistical data. Nevertheless, the majority view seems to be that the reasonable man should restrain his thinking more to the realm of probabilities than to the mere possibility of some other hypothesis. Thus, the prosecution does not have to prove the criminal agency beyond all possible doubt, but only beyond a reasonable doubt.

RESPONSIBILITY

It should be noted that the proof of the corpus delicti —the burning and the criminal agency—does not establish any particular person as being responsible for the incendiary fire. The actual connection of the accused with the crime has no part of the corpus delicti. The court, in People v. Hays,[18] stated:

> Defendant appears to contend that the evidence of the corpus delicti was insufficient because it was not shown that defendant was present when the fire was set, nor were the means by which the fire occurred shown. The connection of the defendant with the crime is no part of the corpus delicti.

Except in the rare arson case where there is an eye witness to the actual setting of the fire, the investigator must depend upon circumstantial evidence almost entirely in order to prove the responsibility of the accused. Even if there is a confession it is almost always circumstantial evidence which is used to corroborate the confession. In the terminology of *Black's Law Dictionary*, circumstances are: "Facts or things standing around, or about, some central fact." In the case of the arson investigation the central fact would be the fire itself. Now the circumstances around this fire may have occurred months prior to or subsequent to the fire; just before or just after the fire; or perhaps even during the fire.

For an example of some circumstances in connection with a commercial fire the investigator should find an answer to the following questions:

1. Is the business making a profit or loss?
2. Have the market conditions varied in the last few months?
3. Are the owner's tax reports correct?
4. Are there any shortages?
5. Is there overinsurance?
6. What was the date and circumstances under which the insurance was written, increased or decreased?
7. Does the remaining merchandise equal the claimed value?
8. Was any of the merchandise obsolete?
9. Has any change in the neighborhood affected this business?
10. Is an audit of the books necessary to reflect any of the above?
11. Was there any attempt to sell the business?

The above questions, while indicative of the type of information desired, are not considered to be all-inclusive.

As stated before, it quite often happens that the evidence used in proving the corpus delicti is the same evidence which tends to prove the responsibility of the accused for the criminal agency. The court, in People v. Freeman,[19] after considering the incendiary nature of the fire; the opportunity the accused had to set the fire; the removal of clothing and personal effects; evasiveness of the accused concerning insurance coverage; overinsurance on dwelling and contents; the heavy indebtedness of the accused; the removal of the occupants from the dwelling before the fire; and the accused being the last person to leave the premises, was of the opinion that all

[16] supra.
[17] 146 Me. 351, 81 A.2d. 665 (1951).
[18] 101 Cal.2d. 305, 225 P.2d. 600 (1950).
[19] Cal., 286 P.2d. 565 (1955).

of the above were circumstances, which, when taken together, were sufficient to show criminal responsibility.

Proving Criminal Responsibility

In speaking of proving criminal responsibility, the court, in Whatley v. State,[20] had the following to say:

> In arson the corpus delicti consists first of a building burned; and second, that it was wilfully fired by some responsible person, and the guilt of the defendant may be proven by circumstantial evidence as well as by direct evidence.

Assuming that the accidental or providential causes of fire have been eliminated in a particular case, and that there is sufficient evidence to establish the corpus delicti; then the only remaining necessity is to prove that a particular person is responsible. Of course, one of the easiest ways to prove this responsibility is to have a confession; but all arson investigators know that confessions are a little difficult to obtain. But if a confession is obtained and fully corroborated, then there would probably be a conviction. In those cases where one does not have a confession an attempt must be made to connect the accused with the crime. The investigator might determine if the accused had access, or even sole access to the burned structure. Did the accused have an opportunity to commit the crime? For an example, the court, in Commonwealth v. Tomaino,[21] considered that where a fire was unquestionably of incendiary origin, circumstantial evidence which "naturally" warrants an inference of guilt, such as the fact that the defendants were in exclusive control of the building, will be sufficient to sustain a conviction for arson.

It is not necessary for the State to present absolute proof if the guilt of the accused is established to the exclusion of every other reasonable hypothesis.[22] Thus, when a conclusion of guilt is based upon circumstantial evidence, it is essential that the evidence should, beyond a reasonable doubt, actually exclude every hypothesis but the one upon which the conviction is based.[23] However, it is necessary at this point to refer to the previous discussion of what does beyond a reasonable doubt mean. Reference here is to a reasonable hypothesis—a supposition, a theory, a speculation, a condition or inference; and again the key word is reasonable. The mere possibility of some other hypothesis or theory would not warrant an acquital. It is a good idea to always raise the question: "Is it reasonable to believe that so and so might have occurred instead of what the investigator believes actually did occur?" The arson investigator is certainly not the final arbiter of what may have occurred, or what is reasonable to believe did occur. Nevertheless, a critical analysis of the case during the investigation often helps one to prepare sufficient evidence of probative value for the prosecutor.

Some examples of other evidence which might be used to link the accused with the commission of the crime are: fingerprints or footprints; tracking by bloodhounds; removal of personal effects, especially of a sentimental value; witnesses who can place accused in the vicinity of the structure before fire; fact that accused purchased a flammable liquid; threats made by accused; utter lack of motive on the part of any other person (exclusion of any other reasonable hypothesis); and motive on the part of the accused. Any arson investigator can add numerous examples to the above.

CONCLUSION

The material covered above is in reality only a brief condensation of this vast subject matter. There have been a few books written on this subject which seems to indicate the difficulty of summarizing the material into a short article. But the purpose here has been to give a factual and fundamental basis for further study and understanding. Perhaps some of the rules and terminology used above will not apply in all jurisdictions in the United States, but certainly the majority view is in accordance with the above.

Three Essential Elements of Arson

If the arson investigator will keep in mind the three essential elements of the crime of arson: (1) a burning; (2) the burning as a result of a criminal agency (by the hands of a buman being), and (3) the accused was responsible for the criminal agency, he will more likely be able to gather his evidence to prove each element as he progresses through the investigation. And if he does not determine sufficient evidence to prove a particular element of the crime he will be aware of this fact. In this connection, the investigator should not hesitate to consult with the prosecutor during and after the investigation. There may be some technical legal point, unfamilar to the investigator, upon which the prosecutor may be able to render invaluable aid in establishing sufficient proof of probative value.

Everyone has heard of the perfect crime. Is a perfect crime one in which there are no clues or investigative leads; or is it one in which such clues and leads were not discovered, or if discovered, were not properly handled? If the correct definition is deemed to be the latter, then it is submitted that the term "perfect crime" is a semantical misnomer; for in reality, the crime was not perfect —the investigation was just imperfect. Unfortunately, the latter is too often true—that the investigation was imperfect. The answer to the question as to whether a true bill is to be returned to this charge against the arson investigator is entirely in his hands. This is certainly not an argument for every investigation being a perfect one—with a conviction as the ultimate result. On the con-

[20] supra.
[21] 168 Pa.Superior Ct. 505, 79 A.2d. 274 (1951).
[22] Smith v. State, 85 Ga. 129, 68 S.E.2d. 393 (1951).
[23] State v. Clay, 135 W.Va. 618, 64 S.E.2d. 117 (1951).

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trary it is an argument, or rather a statement, that the investigator is almost completely responsible for the result on any particular case.

Of course, the success or failure of an arson investigation often depends upon the methods used by the firemen when, and if, they discover incriminating or suspicious evidence of arson. Perhaps there were clues and leads at this point, but the physical evidence was gathered and handled in such a way that it was not admissible in evidence. Nevertheless, the responsibility rests with the investigator after he commences his work on the case. For this reason, the investigator should endeavor to improve his knowledge, his abilities, his techniques, and his understanding of all phases of arson investigation.

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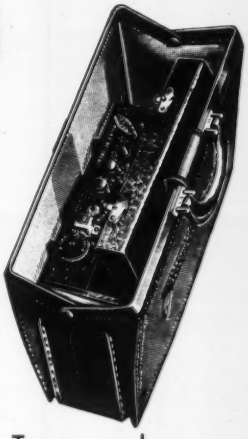

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(2) A simple inhalator and two size "E" oxygen cylinders. (Many well-equipped ambulances will have both.)

(3) Breathing tubes: one adult size, one child size (to be available for patients requiring oxygen, cardiac emergencies, asthma and other asphyxial accidents).

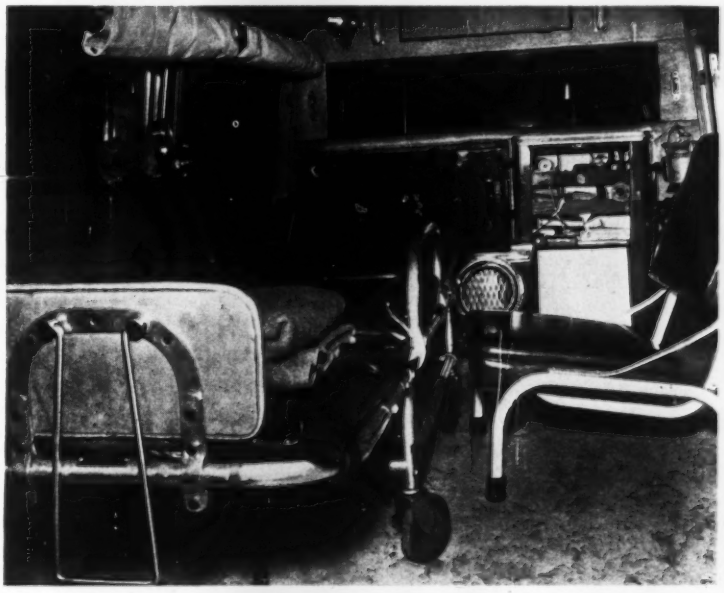
D. Stretchers:

(1) One ambulance stretcher. (This ambulance stretcher *must not have fixed joints* which would prevent its movement into the *most comfortable* and *safest position* for the injured patient.)

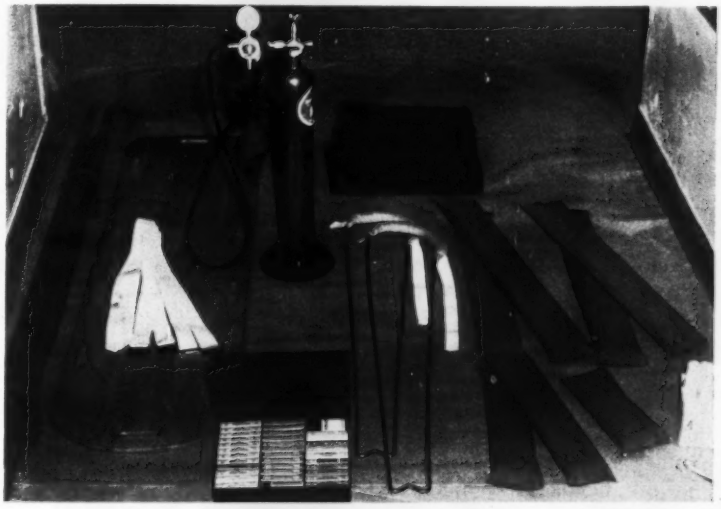
(2) One Army or other collapsible stretcher, *so as to avoid the necessity of loading a second patient on the floor of the ambulance.*

E. First Aid equipment:

A kit containing sufficient material to arrest hemorrhage and cover wounds. Such a kit

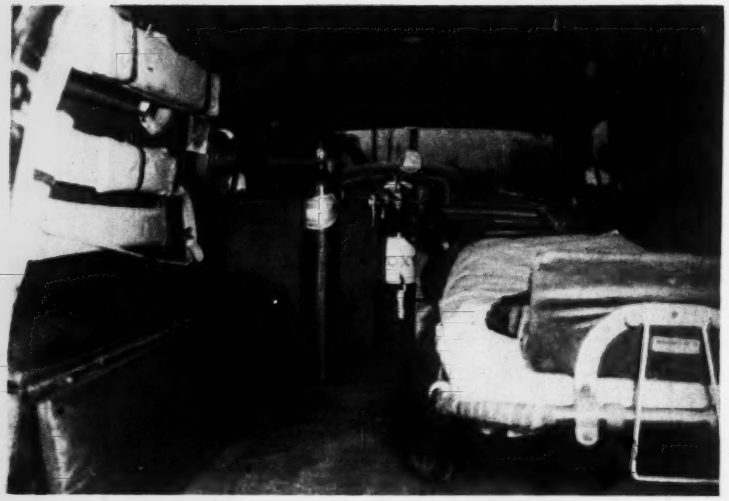


This shows first aid equipment. A heater to keep the victim warm, and a sliding partition separating the rear of the ambulance from the driver's cab. Also, may be seen, the space available for a second victim. The chair is moved forward and a second victim on an army stretcher is easily placed in the ambulance along side the ambulance cot. An ambulance sheet, with poles, can be seen on the upper left hand side of the picture.



Necessary first aid equipment which every emergency ambulance should have. Proper first aid procedure depends on adequate equipment as well as proficiency in its use.

* All splints covered with rubber sheeting and padded with untreated cotton batting, one and one-half inches thick, placed on a light, strong board.



A well equipped emergency ambulance.

This emergency ambulance does not have one item of First Aid equipment, It is a common sight in many communities.

may be of the "unit type" or one especially made up of the "home type variety."

(1) First Aid Kit "*unit type*" (36 unit recommended size).

4″ bandage compress 14 units each

3″ bandage compress

2″ bandage compress 2

2″ bandage compress 2 units each

1″ bandage compress 2 units each

Triangular bandages 4 units each

Gauze compress 1 unit each

4″ roller gauze bandage 1 unit each

2″ roller gauze bandage 1 unit each

Antiseptic (mercresin 1 unit each merthiolate, iodine, or metaphen).

Ammonia inhalants 1 unit each

Bandage scissors 1 pair

Kip Tannic 1 unit

1″ adhesive tape 1 unit

Eye Dressing Kit 1 unit

Tourniquet 1 unit

3″ x 3″ sterile gauze pads 2 units

(OR)

(2) Kit containing:

250 to 500 4″ x 4″ gauze pads (to cover wounds and arrest hemorrhage).

Two dozen 4″ roller gauze bandages.

Two dozen 3″ roller gauze bandages (to be used in holding gauze pads on wounds).

One dozen triangle bandages (to be used in holding gauze pads on wounds, immobilizing fractures, etc.).

One dozen ready made straps (3½ inches wide) with buckle (to be used in applying padded splints to extremities).

One bottle alcohol

One bottle antiseptic

Ammonia inhalants

One tourniquet

Two tubes Kip Tannic or Vaseline Petroleum Jelly

NOTE: The type of burn ointment as well as the type of antiseptic used in any given community should be that recommended by the local Medical Society.

Some state laws require special fills in the first aid kit. The local medical society or health department should recommend the units they desire in the cities and towns not having a State law giving the required fill.

F. Three wool blankets

One rubber blanket

Three sheets

G. Safety Equipment:

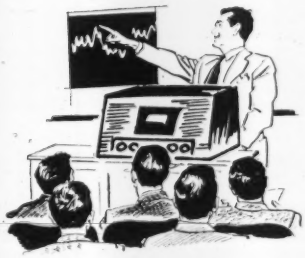
(1) A flashlight

(2) Road flares

(3) Fire extinguisher

(4) Wrecking bar

(From Young, C. B., Jr.: *First Aid and Resuscitation.*)



Education of Police Personnel to the Use of the Polygraph

By Detective Sergeant Dell R. Watts

EDITOR'S NOTE: *Detective Sergeant Watts is a veteran of sixteen years service with the St. Louis Police Department, seven of which have been spent in the Police Laboratory as a polygraph examiner where he has examined over 3,000 individuals in actual criminal cases. He is a graduate of the Keeler Institute and an active member of the Academy for Scientific Interrogation. He has served both in the Navy and in the Army. While assigned to the Combined Services School for Military Police and Criminal Investigators at Camp Gordon, Georgia, he assisted in the establishment of the course on Polygraph Examination and contributed course materials dealing with the psychological and physiological aspects of interrogation techniques. As an instructor in this school, his classes included personnel from the O. S. I., C. I. C., C. I. D., U. S. Secret Service, and the Washington, D. C., Police Department. In addition to his regular police duties, he is now working toward a degree in Psychology and Personnel Relations at St. Louis University.*

THE use of the polygraph (lie detector) in our major police departments has now reached the cross-roads of importance, and what we are to do with it and how we are to handle it, create a problem of major concern to all polygraph examiners. The author's suggestion on the subject is a realistic, educational program beginning with all police personnel concerning the effectiveness and the limitations of this investigative aid.

The entire field of polygraph examiners at the local police and civilian levels and in state and federal agencies is affected by what the police examiner does and how he handles each case. Newspaper, magazine, and other news articles are featuring the lie detector, and if the publicity is negative, everyone in the field of lie detection suffers as a result. The time is opportune for police agencies to start an educational program and disseminate the true facts concerning all phases of this scientific field. Educate your police officers and your examiners will do a much better job, and you will further find that your results, in terms of efficiency and number of case clearances, will increase.

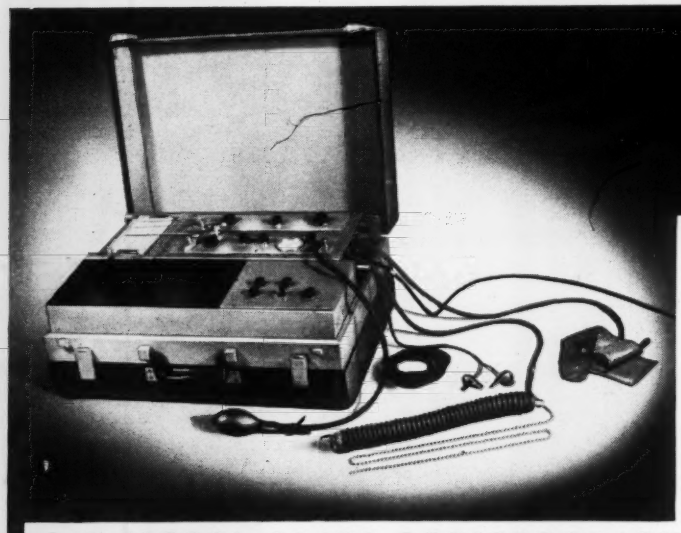
This is the plan and the type of educational program that we started in the St. Louis Police Department, and the results speak for themselves. Since 1948, with the aid of the Police Academy in allotting time and space, we have instructed all police officers in certain phases of the polygraph, particularly with respect to the aid they can render the examiner by their handling of the subject.

Before attempting such a program, it is well to determine how your superiors feel about it and the degree of support they will give to a program of this type. In the St. Louis Police Department, the cooperation of both the Board of Police Commissioners and the Chief of Police has provided complete endorsement and support of this project as a further aid to a well informed police department. Another important point to keep in mind in contemplating a similar program, is the amount of extra work and time involved in this type of project. With the 1900 commissioned officers that we have in this department, the total man-hours spent in this program approximated 19,000 hours during a seven year period. Such a program as this will prove a source of gratification and will help to elevate both you and your department. A collateral development has been the stimulation of interest on the part of outside groups including schools, hospitals, colleges and business groups, who want to hear more about this machine known as a lie detector. Don't overlook the opportunity to convey to these organizations the value of the polygraph in assisting your department in raising the standards of service to the city by the use of this investigative aid. A well informed police department and a well informed public will add prestige and effectiveness to a polygraph program.

St. Louis Police Department Statistics

In the St. Louis Police Department, these are the facts and figures as reflected during the period since 1947 when our program of education was instituted. In 1948, we examined 206 individuals; in 1949, 624 individuals; in 1950, 726 individuals; in 1951, 815 individuals; in 1952, 815 individuals; in 1953, 869 individuals; in 1954, 1152 individuals. Using the above figures the author compiled the following data which can be confirmed by departmental records! From July of 1951 when we started compiling data as to negative, positive or inconclusive results, including confessions to examiner and known confessions to the police after leaving the laboratory, these are the figures for this four and one-half year period:

Address: Sgt. Dell R. Watts, Polygraph Examiner, St. Louis Police Department, St. Louis, Missouri.



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From July through December of 1951:

Total Tests:	409
Positive:	165
Negative:	201
Inconclusive:	43

Confessions of positive tests to examiner: 37 or 22.4%.
Confessions of positive tests to officers: 10 or 6.0%.

From January through June of 1952:

Total Tests:	370
Positive:	107
Negative:	221
Inconclusive	39

Confessions of positive tests to examiner: 24 or 22.4%.
Confessions of positive tests to officers: 6 or 5.6%.

From July through December of 1952:

Total Tests:	466
Positive:	147
Negative:	271
Inconclusive:	48

Confessions of positive tests to examiner: 33 or 22.4%.
Confessions of positive tests to officers: 7 or 4.7%.

From January through June of 1953:

Total Tests:	500
Positive:	153
Negative:	294
Inconclusive:	53

Confessions of positive tests to examiner: 37 or 24.1%.
Confessions of positive tests to officers: 13 or 8.4%.

From July through December of 1953:

Total Tests:	371
Positive:	107
Negative:	217
Inconclusive:	47

Confessions of positive tests to examiner: 28 or 26.1%.
Confessions of positive tests to officers: 5 or 4.6%.

From January through June of 1954:

Total Tests:	521
Positive:	171
Negative:	283
Inconclusive:	67

Confessions of positive tests to examiner: 57 or 33.3%.
Confessions of positive tests to officers: 7 or 4.0%.

From July through December of 1954:

Total Tests:	631
Positive:	209
Negative:	352
Inconclusive:	70

Confessions of positive tests to examiner: 60 or 28.7%.
Confessions of positive tests to officers: 20 or 9.5%.

From January through June of 1955:

Total Tests:	581
Positive:	233
Negative:	292
Inconclusive:	56

Confessions of positive tests to examiner: 57 or 24.4%.
Confessions of positive tests to officers: 8 or 3.4%.

Our complete figures for 1954 gave the examiners a 31.0% batting average for confessions, with 6.7% to the other officers.

These statistics are based upon all types of crimes running the gamut from homicide to larceny and are included in our lectures to show police personnel that this increase in volume and efficiency is due to their improved handling of the subject prior to a polygraph examination. Here in the laboratory, the increase in individuals tested has been so notable that the polygraph examiner is led to the conclusion that the showing is due to the educational program rather than to any one other factor.

The following materials illustrates the type of lecture given to a recruit or in-service class in setting the stage for the effective use of the polygraph as an aid to the police officer in his investigation.

LECTURE TO CLASSES

A. How should a prisoner be handled prior to a polygraph test?

1. The success of the test will depend to a great extent on how the subject was treated during the time of his detention and the approach used in asking him if he is willing to submit to such an examination.

2. A proper investigation by the officers will seldom affect the subject if the interrogation is not too lengthy and tiring to the prime suspects. Actually, the more limited the interrogation is prior to the test, usually the better the results. All police officers with any training and experience know that it is against all the rules of effective interviewing and interrogation to reveal all the details concerning the crime then under investigation.

3. An officer keeping three or four pertinent facts from the suspect concerning the case, will certainly assist the examiner in formulating questions which will give a conclusive test as to the suspect's innocence or guilt. A polygraph test should never be used as a "last resort." Its efficiency is highest when used early in the investigation and the examiner is in a much better position to give the officers more information, or possibly a statement or confession. You officers are the key as to our test results. Remember! The more limited the interrogation prior to the test, the better the results will be.

B. Can a satisfactory polygraph test be conducted against a prisoner's will?

1. No prisoner or any individual can be forced to submit to a polygraph test. He can simply stand on his constitutional rights and refuse the examination. This is one reason why a skillful approach by the officer, stressing the fact from a negative approach that: if he is innocent, he has nothing to fear, pointing out that the test will be an aid to him in proving his innocence. Do not use the positive approach with the suspect when asking him to submit; let the examiner do this in the pre-test interview.

2. A second point to keep in mind if attempting to conduct a test against the subject's will is: the charts would be distorted to such a degree that the examiner would no doubt have to hand down an an "inconclusive" opinion. If the subject is properly handled, 95% of your subjects will consent to the test and give full cooperation. You officers have a public relations job on your hands at all times. This is just one more and it will pay off consistently in aiding your investigation through preparing the way for an effective polygraph examination.

C. Persons who may prove unfit for a conclusive test.

Certain physical and mental conditions may exert a tremendous influence upon the suitability of an individual for a polygraph test and may affect his reactions to such an extent as to render the test inclusive. The decision to test or not to test the individual should be left up to the polygraph examiner. It is important that the following factors be considered in letting you officers know that subjects with the following disorders will render most tests inconclusive:

1. Permanent physical illness such as a serious heart ailment or a respiratory disease may make the subject unfit. Charts showing these abnormal conditions should be recognized at once by the examiner and the results interpreted as "inconclusive" due to these disorders.

2. Mental defectives will usually reveal their difficulties in the respiration pattern. They are unable to maintain a normal base-line.

3. A highly nervous or very excitable subject may be disqualified for a polygraph test because of his physical and mental condition at the time. But an attempt should be made to test this subject at a later date as this person may become test-qualified when the stress and strain have subsided. If these conditions are permanent in nature, testing must necessarily be suspended. If the nervousness has been brought on by the investigation, later tests may prove to be very profitable. Let the examiner advise you as to what should be done in each case.

4. Alcoholics and drug addicts present a special problem to the examiner at all times, as he is never sure whether the subject is just recovering from the effects of the drug or alcohol, whether he is in need of a shot, or what his true condition is at the time he is brought in. The examiner will attempt to test this man, but nine chances out of ten, the test will prove to be inconclusive. Leave this to the examiner as a psychological approach; the fact that the lie detector is present may carry a certain amount of weight and with interrogation, the subject may come forward with a statement. Truthfully, statements made by these individuals should be thoroughly checked and corroborated since they are not too reliable, as you officers all know. Persons addicted to the use of alcohol or narcotics will usually betray this condition in either the blood pressure or the respiratory pattern.

5. Insane persons and confirmed mentally defective

individuals should not be considered for tests as this is strictly a lost cause. A person with a low intelligence quotient may present a problem but an attempt will be made by the examiner to obtain a conclusive test. Low intelligence is not to be confused with a lack of education. Many individuals may lack educational background but a successful test can be run as long as they are near normal intelligence levels and are able to distinguish between right and wrong. The fear of detection is present in these individuals and they can be tested with some degree of success.

D. What are the advantages of a polygraph test over ordinary interrogation?

1. This is of great importance to police officers who are swamped with a great deal of work and many investigations, and especially when handling a case where there are numerous suspects. The saving of time by quickly eliminating those persons who are innocent, but who are involved because of certain circumstances and must be considered as possible suspects, quickly narrow down the field to where you can start doing a more efficient job and producing results.

2. It will quickly select the person with guilty knowledge, even though he may not have been present at the scene of the crime; but through the grapevine or methods known to police characters, he may know many of the facts in the case and this will be one of your first leads. This group becomes vulnerable as they have reacted to certain pertinent facts, and if put in the middle by the examiner, the subject will usually come forward with the information rather than stand the chance of being involved as an accessory to the crime. All officers are familiar with this technique as it is used a great deal, even when the polygraph is not employed. We have the extra advantage here of knowing when he has information concerning this case and we can relay it on to you.

3. When the suspect shows guilty knowledge of actually having committed the crime itself, he usually will confess. This, of course, is one of the basic reasons why you wanted this man tested, because you felt that he fitted into the pattern in some manner and now he becomes the man that either the examiner or you officers will spend your time with, trying to come up with the right answers and the statement that will close your case. As previously indicated in earlier data, 31.0% of these suspects confessed to the examiner in the polygraph room and 6.7% to officers in outlying districts who have called the author concerning these confessions after the examination. We feel sure, here in the laboratory, that there are many more confessions to district officers than the records reveal, but this we cannot confirm with facts and figures.

E. Does the laboratory conduct polygraph tests in family disputes and other civil matters?

1. The answer is NO! This type of case is better left to private agencies as they have no connection with a criminal charge and will only cause a great deal of work without settling any differences for these individuals.

2. The police laboratory is interested only in cases which will result in criminal prosecution.

F. In the case of polygraph tests requested on juveniles, permission of parents in the form of a written consent should be obtained prior to any testing so as to avoid any negative comment that may be made later on. It is our policy in the St. Louis Police Department not to run juveniles under the age of nine years, as we have found the tests may not be reliable and may create a problem in case diagnosis.

G. Are polygraph tests accurate? Yes, provided all the above suggestions are followed closely. The polygraph technique and results are very accurate when used properly and can be relied upon in most cases in determining whether a subject is telling the truth or not. There are cases where mistakes have been made, but you will find these are in favor of the subject who may be guilty. Because of the slight reactions and the fact that the crime committed is relatively insignificant (such as a petit larceny charge), the actual offense may not stimulate the subject to any great degree. Examiners must abide by the results found in the charts, uninfluenced by a preponderance of evidence brought in by the officers. If the subject is guilty and this is reflected in the charts, our opinion is going to be positive with no reservations.

As to the examiner's opinion concerning polygraph examinations, I am sold 100% and feel that when the investigating officers are informed concerning this technique, there should be no need for an error. If there be a mistake, remember the machine did not commit the error, but the man sitting on the other side is at fault. At the present stage in the development of this diagnostic technique, even as in medical diagnosis, the human factor is still to be considered. That is why these classes are set up and officers are requested to attend so that we may eliminate every possible chance of error by following as closely as possible, all the rules for the techniques involved in the field of polygraph examination.

H. How does the police officer arrange for a polygraph test and what information must he have for the examiner?

1. Officers will telephone the police laboratory and ask for an appointment and the clerk on duty will set the time for a particular test. We would like to have the prisoner's name, the charge he is being held on or suspected of, and the complaint number of the original police report.

2. These appointments are necessary in order to avoid a long delay on your part and so that we in the laboratory can arrange our work load to conform to personnel needs for the day. The policy in the laboratory is the first officer that calls goes on the schedule at the time he

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● Detective Agency: "Psychologically, our Polygraph is worth $10,000 just sitting in the office — aside from actually saving time and expense in our personnel investigations."

● Midwestern Police Chief: "We kept a log on our machine during the first three months of operation. In that short time, the manhour savings and dollar value of stolen goods recovered more than paid for our polygraph room, training the examiner, and the cost of the machine."

● Western Police Department: "Results obtained through the use of the Polygraph materially reduce manhours spent on investigations, and aid substantially in the quick elimination of innocent suspects in numerous cases."

AND REMEMBER: *Keeler Polygraph is the* only *"Lie Detector" developed and perfected through more than 15 years of close cooperation with law enforcement agencies throughout the world.*

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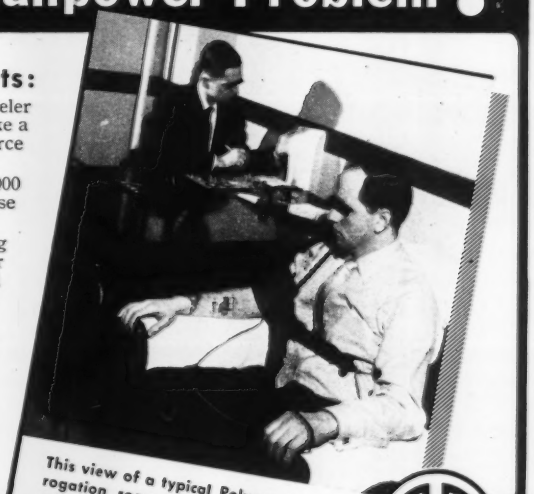

This view of a typical Polygraph interrogation room shows examiner determining truth or falsehood of subject's responses to questioning.

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selects and this sequence is followed until the appointments are filled.

3. After the time has been set for the requested test, bring the subject directly to the third floor of Police Headquarters where there are facilities for prisoners and you can maintain a watch on them until the time for the actual running of the test.

4. The arresting officer who is familiar with all the facts in the case should accompany the prisoner to the laboratory and if it is not possible for this officer to come in, another officer may accompany the subject, but he must have a complete police report covering all the material known about the offense and all other pertinent facts. This is indispensible so that the examiner has a complete picture of the entire case before an attempt is made to start formulating the test questions. Background material on the subject is also needed (such as prior arrests, etc.) so as to form irrelevant and fictitious questions necessary for a reliable and valid test. It is important that all facts be embodied in a written report so that nothing is forgotten by the officer when giving the information to the examiner. Give all the material you have to the examiner, let him screen the material for the points he needs; one point that may be unimportant to the officer, may be the key to the case when used by an examiner during a polygraph examination.

5. After the examination has been completed and we have interrogated the subject, we (the examiner) will hand down our opinion to you in an oral report, pointing out to you (if a positive test) the reactions we have found on questions pertinent to the offense committed. This is information to be used by you in interrogation and further investigation of your case. In two or three days, a complete written report will be forwarded to your district for your attention confirming the information given to you in the oral report. This written report is made available so that you may have a complete file jacket concerning the crime you are investigating.

I. When is the police laboratory open for business?

1. From 9:00 a.m. to 5:00 p.m., Monday through Saturday.

2. From 11:00 a.m. to 2:00 p.m. on Sunday.

3. The above hours constitute the regular working day, but in cases of emergency and when you have an important case that must be run because of the time factors or other extenuating circumstances, you can get in touch with the polygraph examiner who is on call after regular hours, and he will take care of your problem.

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job when you call on us to examine one of your suspects. Summarizing, the eight main topics we covered, are:

A. How should a prisoner be handled prior to a polygraph test?

1. He should not be questioned to any great extent; the more limited the interrogation, the better the test.

2. Always conceal from the suspect three or four pertinent facts to be used by the examiner in his test.

B. Can a satisfactory polygraph test be conducted against a prisoner's will? No. He may refuse the test because of his rights; and secondly, the subject must cooperate and be quiet during the examination.

C. What persons cannot be given a polygraph test with any reliance as to the results?

1. Alcoholics.
2. Drug Addicts.
3. Mental defectives.
4. Highly nervous persons.
5. Persons suffering from respiratory diseases or heart ailments.

D. What are the advantages of a polygraph test over ordinary interrogation?

1. Saves time by quickly eliminating the innocent.
2. Picks out the person with guilty knowledge.
3. When a prisoner shows guilty knowledge, he usually confesses.

E. Does the laboratory conduct polygraph tests in family disputes and other civil matters? No. The police laboratory is interested only in cases which will result in criminal prosecution.

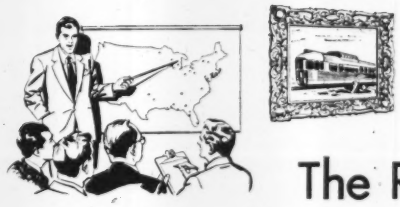
F. Polygraph tests to juveniles? Tests can be given to juveniles with parents' written consent.

G. Are polygraph tests accurate? Yes! Provided all the above suggestions are followed closely.

Keeping the above information concerning the polygraph in mind, you officers and the examiners in the laboratory, can all do a much better job and end the month and the year with a much higher percentage of cases cleared.

This is the type of material that we give to all police personnel in the St. Louis Police Department. Now, as far as you are individually concerned, this information may vary with your own department. But keep this in mind: give the personnel the true facts concerning just what you can do and what you cannot do.

The welfare of the polygraph field will be influenced by the work of examiners in the police investigative services. If they fail and the publicity is negative, we are all going to be adversely affected. Let us all start a program of education in this respect, beginning with our police agencies.



Departmental Organization of The Railroad Police

By H. S. Dewhurst

EDITOR'S NOTE: *Mr. Dewhurst has been with the Association of American Railroads for the past fourteen years, during the last five of which he has served as Secretary of the Safety, the Protective, the Operating and the Medical and Surgical Sections, and the Joint Committee on Railway Sanitation, with headquarters in Chicago. On March 1 of this year, he was appointed Special Assistant in the Public Relations Department of the Association, and now receives his mail at the Transportation Building, Washington 6, D. C.*

Prior to identifying himself with this organization, Mr. Dewhurst was engaged in newspaper work. He attended New York University and served in the Army during World War II. He has contributed both articles and verse to a number of publications and is the author of a book that has attracted widespread attention, The Railroad Police, *published in 1955.*

SO much is involved in the *organization* of railroad police departments that the word itself doesn't begin to tell the story. The historical aspects, the formulation of centralized departments on individual carriers, the kneading of these many separate units into a single, highly-coordinated protective agency—all these and more are part of the organizational picture.

Actually it may be said that today railroad police and special service departments, collectively, comprise the largest, most competent private law enforcement body in the world. Safeguarding as many as 400 railroads, each with its own policies and practices to be considered, are less than 9,000 commissioned railroad police officers, located in approximately 1,000 cities and towns throughout the United States and Canada. More than 500,000,000 passengers and billions of dollars worth of freight come under their care and protection annually. And basic distances span some 225,000 miles of road and 400,000 miles of track operated by those companies.

Carrying this fundamental coverage a step further, the railroad police effect some 60,000 arrests annually and enjoy the exceptional record of securing convictions in close to 98% of all cases tried. They are confronted with around 600,000 trespassers in a single year's time, most of whom are youngsters—and juvenile problems, here too, are currently the most critical. Little could be further from reality, however, than any assumption that because of their industry relationship railroad police are not confronted with the usual, unfortunate variety in criminal activity. While it is only natural that much of this activity should be related to such things as robbery of box cars, an attempted train wreck, thefts of baggage, freight and express, investigations of fraudulent claims, and the like, it is not unusual for a railroad police officer to come face to face with the entire gauntlet of crime—forgery, larceny, murder, rape, arson, etc.—and occasionally in as short a period as a single month.

At the same time, since it is and has been the policy of railroad police to shun publicity as a rule, the general public has had little opportunity to recognize the true value of this protective force. It is not readily known, as an instance, that while payments on account of theft of freight were at a crippling high of almost $13,000,000 in 1920, this figure has been reduced to $650,101 in 1955, with an even further decrease being indicated during 1956. It is not readily known that railroad police use all modern techniques of crime detection in their unified battle against crime . . . or how high the standards are for employment in those departments . . . or how well-trained these officers are today.

Success Resulted from Hard Work

It is to be appreciated, of course, that much of the success of the railroad police is the direct result of that background phase of most any type of police work: digging for facts, thoroughness of detail, a dogged determination to find the truth at all times and to solve even the most minor case. In this respect, it is also to be appreciated that it is even more pressing upon a private police agency of this nature to be absolutely sure of the facts and the findings. A mistaken arrest by a railroad policeman when acting as a railroad policeman has as its shadow the almost certain result of a suit against both the officer and the company he represents for damages, and quite likely with greater promptness and success than would be the case where some governmental police agency might be involved.

In any analysis, however, a prominent portion of the

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credit for accomplishment must go to the extremely high degree of coordination which exists among all railroad police, and this close working relationship, in turn, may be credited to the establishment of centralized departments. It was in the early 1900's that this full-scale organization of railroad police departments really got under way. Prior to that time a more limited number of railroads, particularly among those carriers forging out into the "wild west," set up at least the beginnings of centralized departments under the stress of doing everything possible simply to stay in existence. Those were the hectic, pioneer days so well described in history books—the often short-lived days which included and emanated from the gold rush era, Indian warfare, the Civil War, boom towns filled with adventure seekers, speculators and drifters. By 1860, there were 30,626 miles of railroad in the United States—and by 1890 this total had grown to 163,597 miles of railroad. By the very nature of their physical layout, the railroads were easy prey for thieves and bands of outlaws. Losses soon amounted to millions of dollars.

Protection, therefore, became an absolute necessity, and it was then and under those conditions, as far as the records indicate, that railroad police, as such, had their official beginning. Gradually more and more of the individual railroads established departments for this purpose, many of those first, smaller railroads later becoming parts (divisions, districts and regions) of large systems.

The Basic Structure Today

Today the basic structure of railroad police departments is somewhat similar to that of municipal police departments, from a Chief or Commissioner down through the ranks to Patrolmen. There are variances in the titles carried by railroad police department heads, such as Chief Special Agent, Chief of Police, Superintendent of Police, Superintendent of Property Protection, Superintendent of Special Service, and others, yet these and their level may be likened to a Commissioner of Public Safety or Commissioner of Police. Additional titles and levels of authority which are closely similar if not identical are Captain, Lieutenant, Sergeant, Special Officer and Patrolman. In fact, to some extent, salaries and certain other working conditions are also comparable, but when it comes to police power here, indeed, is a contrasting picture as far as the railroads are concerned.

The first granting of official authority, and on a statewide basis, appears to have been with the passing of The Railroad Police Act in the State of Pennsylvania, February 27, 1865. Through this Act, the Governor of that State was authorized to grant police power to any individual for whom the employing railroad petitioned. In due course other States followed with provisions for appointing railroad police officers until, today, they all have some coverage of this nature. However, the differences in those provisions are such that many of the railroads operating through even as few as four or five States are confronted with completely contrasting methods of attaining police power.

Currently such provisions as are in effect by law are almost equally divided between appointments through the local county or city police head and by the Governor. These railroad police powers range all the way from statewide jurisdiction on and off railroad premises, with indefinite terms of Commission and little or no requirements as to employee residency, to authority only as a private citizen with strict limitations as to territorial jurisdiction and residency.

Actually there could justifiably be more leniency with respect to such restrictions for a number of reasons. First of all, no individual railroad company intends or desires to tolerate any misuse of such authority. Secondly, it is seldom that a railroad police officer effects an arrest without working closely with such city, state or federal law enforcement representatives as may be concerned. A third reason is that a statewide commission without other undue restrictions would generally be used to that extent only when it was directly necessary for the ready apprehension of a culprit or the solution of some case by a given officer, and even then such investigation and action would be in cooperation with all interested police departments.

And fourth, the railroad police are understandably proud of the esteem in which they are held by the various other law enforcement agencies and wish only to continue to warrant and to foster this harmony of effort on behalf of one and all.

Standards Have Been Improved

Over the years great strides have been taken in the setting up of standards toward bringing only properly qualified personnel into the service and with respect to the instruction and training of that personnel. It is an accepted fact that in the first days of the railroad police the physical prowess of the applicant was the deciding factor in his employment. Long since, however, the requirements have been developed to include, among other essentials, the following:

1. That he be a citizen of the United States.
2. That he be a high school graduate or the equivalent.
3. That he not be addicted to the use of drugs or intoxicants.

In the matter of age, height and weight, the generally accepted limitations are a minimum of 21 years old to a maximum of 40; a minimum of 5′ 8″ tall to a maximum of 6′ 3″; and a minimum of 160 lbs. in weight to a maximum of 210 lbs.

All applicants must pass thorough physical and written examinations, and a particularly careful check is made of all information supplied as to previous occupa-

Fingerprint Trade-Marks

The finger in Fig. 4 displays a *central packet loop type* of whorl pattern. Characteristics or trade-marks are described as follows:

1. The ridges on the side of the finger go up one side, around the tip and down the other side.

2. Skin damage which is temporary in character and which will not leave a scar.

3. Prominent ridge which is broken into segments.

4. A short independent ridge crowded between two prominent ridges.

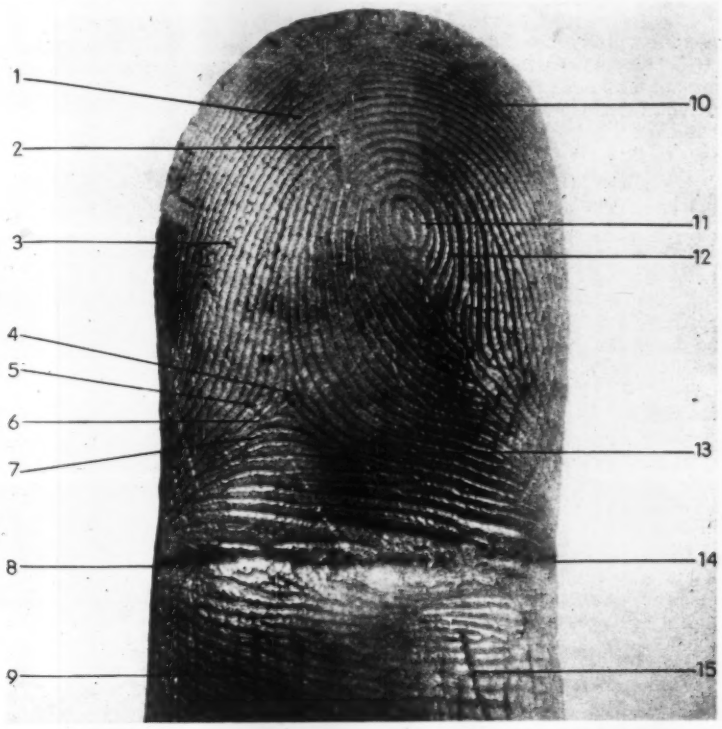
5. The upper type ridge which forms the *upper type line* in an inked impression. It "tends to surround" the pattern area in an upward direction.

6. The *delta* is a specific point established by definite rules. Deltas are found in all fingerprints except plain arches. They are found between the upper and lower type lines in an inked impression.

7. *Lower type line* is formed by this ridge in an inked impression. Like the upper type ridge, it tends to surround the pattern area in the opposite direction.

8. The *fissure* is the most prominent crease in the skin which shows on the face of the finger. There may be one, two or more prominent fissure type creases at a joint, they are caused by extreme creasing or folding of the skin at the joint to accommodate joint movement.

9. A prominent *crease* in the skin. Creasing below the fissure usually is prominent. Creases are folds in the skin accounted for individually by movements of the flesh and skin. They are as characteristic and individualistic as ridge structure.



10. *Counter clockwise bifurcation*. Some ridges divide or fork and make two ridges where one existed before. They are named according to the direction they turn—clockwise or counter-clockwise.

11. Central pocket loop, a small recurving ridge is seen in the pattern area by which it is determined that the pattern is a central pocket loop type whorl.

12. *Clockwise bifurcation* or forking of a single ridge to the right. The two forks stop abruptly in front of a ridge at a sharp angle.

13. A *short* ridge in between two long ridges.

14. *Fissure*, it crosses the finger at the joint.

15. *Crease*, below the fissure the creasing is usually at right angles to the fissure and prominent. (From Scott, W. R.: *Fingerprint Mechanics.*)

tions, experience and education. An applicant's fingerprints are taken and checked.

Together with the long ago accepted need for proper selection was the recognized value of thorough instruction and training, having in mind that the most qualified individual would always, even so, be a hazard to himself and to his job and his company unless given adequate guidance in the right procedures. Thus most railroads today have, first of all, some sort of manual or booklet outlining various rules and basic instructions. These vary as to the number of items and amount of detail they cover, some even including "briefs" of pertinent statutes. Possibly the most generally accepted coverage of this nature, however, is that compiled through the Protective Section of the Association of American Railroads and issued originally in 1932 under the heading *Instructions for the Guidance of Railway Police or Special Service Department.*

While these recommendations could not be too specific or all-inclusive, they proved of such assistance that they have continued in wide use and have had to be reissued on numerous occasions since that time. In fact, the important part played by these overall recommendations in the expansion of provisions for instruction and training of personnel warrants quoting at this point the following pertinent excerpts from that report:

PURPOSE OF THE POLICE OR SPECIAL SERVICE DEPARTMENT

General Notice

The Police Department is organized to:

1. Protect the property of the company against carelessness, negligence, malicious mischief, depredations and fire.
2. Guard the freight, express, baggage and mail traffic from theft or loss and damage.
3. Protect passengers against the practices of gamblers, pickpockets and thieves.

4. Preserve order upon the premises of the company and upon its trains.
5. Quell any disturbances that may arise.
6. Uphold and enforce the law insofar as the company's interest may be involved.
7. Conduct such investigations as the management may require.

General Instructions and Admonitions

(A) Every man in the Police Department is not only a peace officer, but in addition is a guardian of the properties of the company. He is vested by law with certain powers which he must exercise with great caution and prudence. He should bear in mind that all officers must be impartial in their conduct, discarding all political, sectarian, and personal prejudices.

(B) The primary purpose of all criminal law is to prevent rather than to punish. The Police Department is a preventive as well as a repressive force in its relation to crime and unlawful violence. It is imperative that every member of the Department exercise constant vigilance to prevent crime.

(C) The efficiency of a Department depends largely on those in command. They should so conduct themselves at all times as to obtain the respect of their subordinates. Nothing tends more to raise an officer in the esteem of his men than a knowledge that he is guided by a strict sense of justice.

(D) Obedience to authority is of the first importance and is essential to the successful operation of the Department. Fault finding is the bane of discipline.

(E) It is no part of the duty of an officer of this department to be over-zealous or meddlesome; these are dangerous faults. A meddlesome officer who interferes unnecessarily upon every trifling occasion stirs up ill feeling against the entire Police Department and does more harm than good. The exhibition of good tempered forbearance and friendly persuasion will enlist the sympathies of observers, and will help him in fulfilling those numerous and important duties that he is employed to execute.

(F) Arrests should be made quietly without attracting unnecessary attention or subjecting the prisoner to needless exposure, humiliation or severity. The officer should be firm but not brutal, making only a discreet and considerate use of lawful powers.

(G) In all conduct speak the truth. Never enlarge the report of a conversation beyond its actual limits. In the desire to procure a conviction employes should let no temptation or consideration induce them to depart from the plain and simple truth. No part of a conversation or statement should be suppressed, nor any tone or action which accompanies it, for everything suppressed is short of the whole truth.

(H) It is the duty of officers to acquaint themselves with the Police authorities in their territory and to be particular to avoid all friction with them. The occasions on which the officers may be called to act are so various that knowledge of the limits and extent of their lawful powers can only be acquired by careful study and experience. While no amount of study can adequately supply the place of practical experience, yet a knowledge of the law will serve to indicate the limits of authority, and will supplement the lessons learned in routine work. Therefore, it is important that all officers give attention to the ordinances and general laws pertaining to the police service. Statutes of various states govern.

Public Relations

The Company is dependent upon the conduct of all its employees for the creation of public relations. The Police Department, in view of the nature of its duties, should play an outstanding role in the creation of good public relations, in fact greater in proportion to its size than any other group of employes. The police officer should continuously strive towards the development of good will.

In order that the Police Department may maintain a high degree of efficiency, it is absolutely necessary that officers shall act with the utmost forbearance, truthfulness, impartiality, and civility towards all classes with whom they establish contact. Officers should practice self-control, remembering that anger renders one incapable of discreet action.

Officers must exercise good temper, courage and common sense, observe a civil bearing and accord respectful consideration to all communications properly addressed. They must not allow themselves to be moved by threats. It is desired that a characteristic of this department shall be the quiet, dignified and manly bearing of its members at all times.

Courtesy pays big dividends in good will and respect to the officer and to the company.

Duties of a Peace Officer

It is the duty of a peace officer to:

1. Keep the peace.
2. Enforce the law.
3. Prevent and detect crime.
4. Protect life and property.
5. Arrest all violators of the law insofar as the company's interest may be involved.

After a crime has been committed he should:

1. Arrest the person or persons committing the crime.
2. Secure witnesses.
3. Safeguard evidence.

In a number of instances, individual railroad police department manuals include, as well as basic instructions and other general information, certain rules of discipline which deal with specifics such as neglect of duty, falsifying of reports, wilful disobedience of orders, insubordination or disrespect to a superior officer, immorality and indecency, etc. As has been stressed, the standards are high, and every possible measure is taken to maintain and safeguard that high level.

The issuance and discussion of written instructions are not nearly, of course, the full story of training. It is regular practice to assign a new man to an old-timer from the standpoint of experience in order that the new employee may acquire a first-hand knowledge of activities. He is often moved around in those first weeks, from a passenger terminal area to a freight yard, from along the line in open country to a busy repair shop, and so on, until he has at least an acquaintance with the wide diversity of function involved in railroad operation and protection.

Schools for Railroad Police

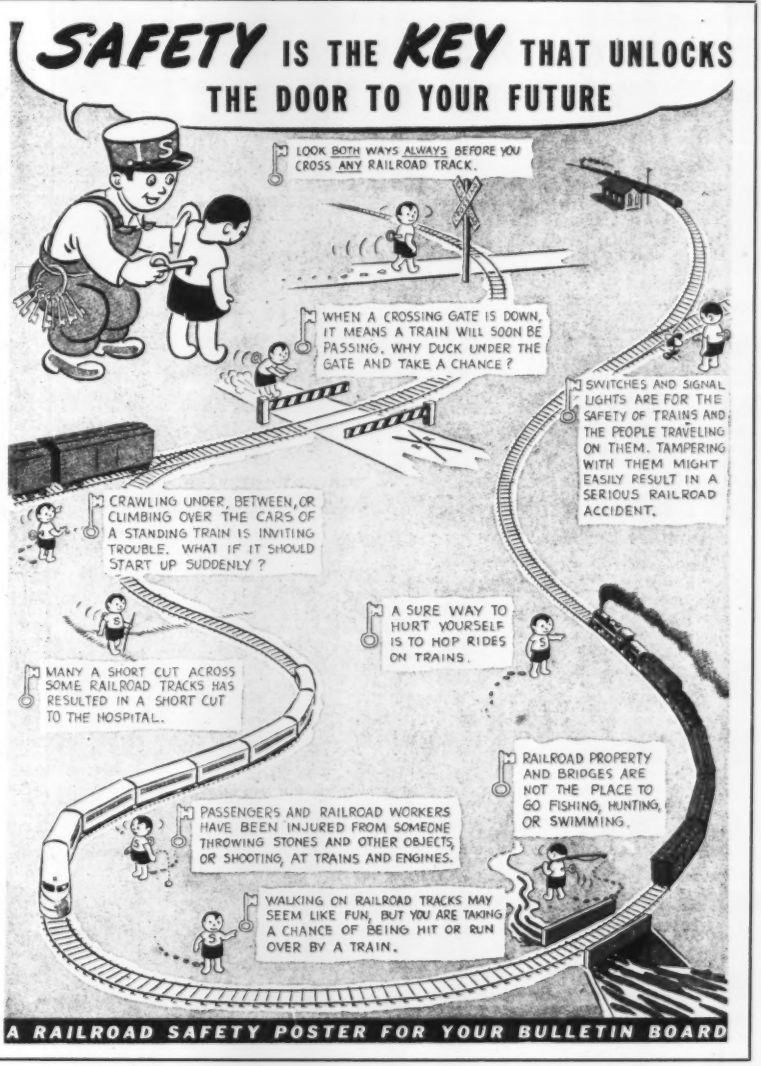
Then, too, some railroads have actual "schools" for new men as well as experienced employees. In these sessions lecturers give illustrated coverages of techniques of all types of investigations, criminal procedure, interviews, self-defense and various other subjects. The programs are comprehensive and invariably are participated in by representatives of other law enforcement agencies as well as the railroads involved. Perhaps the most prominent endeavor along this line, though it is not for new employees, is the National Railroad Police Academy conducted annually by the Protective Section of the Asso-

Most of the approximately 600,000 trespassers found on railroad property in one year's time are youngsters. And this figure includes only those actually known to be on the property unlawfully. There are countless other cases, it is reasonable to assume, of youngsters and adults trespassing on the property who have gone unnoticed, particularly in outlying districts where tracks run through open country with only a small town along the line here and there. Thus the railroad police know that without the complete cooperation of parents, they will never be able to get away from the haunting combination of fear and fact that at any and every minute of the day that they stop to think of it there is some youngster, somewhere, trespassing on railroad property. And they wonder . . .

Do his parents know where he is?

Have they given any thought to his whereabouts in the last fifteen minutes? In the last thirty minutes? In the past hour?

Have they ever so much as mentioned to him that it is not only unlawful to trespass on railroad property but that he might come to harm as a result? (From Dewhurst, H. S.: *The Railroad Police.*)


SAFETY IS THE KEY THAT UNLOCKS THE DOOR TO YOUR FUTURE
LOOK BOTH WAYS ALWAYS BEFORE YOU CROSS ANY RAILROAD TRACK.
WHEN A CROSSING GATE IS DOWN, IT MEANS A TRAIN WILL SOON BE PASSING. WHY DUCK UNDER THE GATE AND TAKE A CHANCE?
SWITCHES AND SIGNAL LIGHTS ARE FOR THE SAFETY OF TRAINS AND THE PEOPLE TRAVELING ON THEM. TAMPERING WITH THEM MIGHT EASILY RESULT IN A SERIOUS RAILROAD ACCIDENT.
CRAWLING UNDER, BETWEEN, OR CLIMBING OVER THE CARS OF A STANDING TRAIN IS INVITING TROUBLE. WHAT IF IT SHOULD START UP SUDDENLY?
A SURE WAY TO HURT YOURSELF IS TO HOP RIDES ON TRAINS.
MANY A SHORT CUT ACROSS SOME RAILROAD TRACKS HAS RESULTED IN A SHORT CUT TO THE HOSPITAL.
RAILROAD PROPERTY AND BRIDGES ARE NOT THE PLACE TO GO FISHING, HUNTING, OR SWIMMING.
PASSENGERS AND RAILROAD WORKERS HAVE BEEN INJURED FROM SOMEONE THROWING STONES AND OTHER OBJECTS, OR SHOOTING, AT TRAINS AND ENGINES.
WALKING ON RAILROAD TRACKS MAY SEEM LIKE FUN, BUT YOU ARE TAKING A CHANCE OF BEING HIT OR RUN OVER BY A TRAIN.
A RAILROAD SAFETY POSTER FOR YOUR BULLETIN BOARD

ciation of American Railroads since 1951. Each of these Academies, covering a two-week period of intensive lecture and project-type sessions, has been attended by close to 50 experienced railroad police officers of all ranks and from all parts of the United States and Canada.

Coming now to the matter of equipment in general use by railroad police, this includes revolver, holster, badge, police whistle, flashlight, club, handcuffs, notebook, insignia, police seals, and the manual of rules and instructions. Another item, the uniform, is every bit as important, but studies indicate that many railroads do not require that their officers wear the uniform regularly except possibly those officers patrolling large passenger and freight stations or on special duty. Most railroads do require that uniforms be purchased and kept available, but the majority of the officers actually work in plain clothes.

Of all of the equipment involved, however, none carries with it more warning and limitation as to use than the revolver. The following paragraph quoted from one railroad's police department rules is typical of the admonition in effect in this regard practically without exception:

> The reckless use and unnecessary display of firearms will not be permitted. Weapons may only be used as a last resort to protect lives. It is far better to let an offender escape, than by the reckless use of deadly weapons, inflict a personal injury which may not only render the Company financially liable, but the officer himself legally and personally responsible.

The wisdom of such precaution speaks for itself. At the same time, of course, it is to be understood that officers are expected to familiarize themselves with the proper handling and care of firearms and to become pro-

(Continued on page 36)

EDITOR and Consulting Editorial Board for POLICE

DR. V. A. LEONARD, Editor—Dr. Leonard took the B.S. degree at Texas Wesleyan College, Ft. Worth, Texas, in 1938, the A.M. at Texas Christian University in 1939 and the Ph.D. degree at Ohio State University in 1949. He entered police service in 1925 as an officer in the Police Department of Berkeley, California, under Chief August Vollmer, where he served until 1932. Subsequently, he became Superintendent of Records and Identification in the Police Department of Ft. Worth, Texas, 1934-1939.

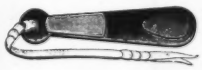
In 1941, he was invited by President E. O. Holland of the State College of Washington to come to that institution with the rank of full professor to organize a new academic department offering a four-year undergraduate program leading to the Bachelor degree in police science and administration, and a graduate program toward the Master's degree in the same major. He was Chairman of the Department for fifteen years. Dr. Leonard has studied police systems in various parts of the United States and in England, France, Italy, Switzerland, Belgium and Holland. He is Past-President of the Texas Division of the International Association for Identification, President-elect of the Academy for Scientific Interrogation and a member of the International Association of Chiefs of Police.

He was extended honorary membership in the Sociedad Cubana de Policiogia y Criminalistica (Havana) in 1950. His editorial pursuits include the role of Associate Editor of the *Journal of Criminal Law, Criminology and Police Science;* Associate Editor of the *Encyclopedia of Criminology;* and Editor of the *Police Science Series,* published by Charles C Thomas, Publisher. He is the author of *Police Communication Systems* (1938); *Police Organization and Management* (1948); and a contributor to the professional journals.

MR. C. B. HANSCOM—Mr. Hanscom is Director of the Department of Protection and Investigation at the University of Minnesota and has been a member of the University staff for many years. He is a veteran investigator with a wide case experience and has been long interested in the promise of scientific method in the various phases of criminal investigation, particularly with reference to the application of the polygraph and associated techniques to the processes of interrogation.

He pioneered in the organization and development of the International Society for the Detection of Deception, later to become the Academy for Scientific Interrogation. His colleagues have long since recognized his contributions to the field and early elevated him to high office in the organization as Secretary-Treasurer, a position he held for a number of years with credit and distinction both to himself and the Academy. Under his inspiration and leadership, the organization grew strong and influential in the field and he was subsequently elected President of the Academy for 1956.

Researcher and practitioner, Mr. Hanscom has rendered veteran service in the exploration of new interrogation methods and techniques. He organized and has participated in an extensive research project at the University of Minnesota in the field of *Narco-Interrogation,* culminating in a paper on this subject which he presented at the 1955 sessions of the Academy of Forensic Sciences. Mr. Hanscom adds important strength to the editorial staff of POLICE in an important area of criminal investigation.



MR. ROBERT A. MASON—During World War II, Mr. Mason assisted in the design and construction of the original mobile transmitters used by the Police Department of San Jose, California. From 1941 through 1944, he was on an assignment as Radar Survey Engineer for the United States Air Force. He was a member of the original survey team which engineered the work on radar installations along the California Coast.

Mr. Mason attended a number of advanced schools in FM radio at the Signal Corps New Jersey Laboratories and served as a Communications Specialist in the United States Marine Corps from 1944 through 1946, returning to work as a civilian with the Air Force as a Communications Engineer. He was employed as an Assistant Radio Engineer for the San Jose Police Department in 1947, and as a Communications Supervisor for the County of Santa Clara in 1948, following the establishment of the Santa Clara County Communications Department. He is at the present time Communications Director of a governmental public safety communications organization with a total personnel strength of thirty-two employes and serving thirty-one police, fire and other public safety agencies within the County of Santa Clara.

In addition to his duties as Santa Clara County Communications Director, Mr. Mason holds the strategic position as Secretary-Treasurer of Associated Police Communications Officers, Inc., a national organization of police communications officers. His presence on the Consulting Editorial Board gives assurance that this vital phase of police organization and administration will receive correct and appropriate attention.

DR. LEMOYNE SNYDER—Dr. Snyder, noted medicolegal counsel, took the B.S. degree at Michigan State College in 1919, studied at the University of Michigan Medical School from 1919 to 1921 and graduated from

Harvard Medical School in 1923. He was intern and Resident Surgeon at the Fifth Avenue Hospital, New York City, from 1923 to 1926. In addition to his other accomplishments, he studied law and was admitted to the Bar in 1934, subsequently received the LL.D. degree from McGeorge College of Law in 1956. He has studied at medicolegal centers in Europe and took work in Legal Medicine at the University of Vienna in 1937.

Dr. Snyder practiced surgery in Lansing, Michigan, from 1926 to 1946 and was Medicolegal Director for the Michigan State Police 1933 to 1948, serving also as Chief of Emergency Medical Service, Office of Civilian Defense in the state of Michigan during World War II. He has been engaged in the private practice of Legal Medicine since 1946 and is a member of *Argosy Magazine's* COURT OF LAST RESORT. In addition to his other responsibilities, he serves as Lecturer in Legal Medicine at Harvard Medical School and in Police Science at Michigan State University.

Among the professional organizations with which Dr. Snyder is identified are the AMERICAN MEDICAL ASSOCIATION, the AMERICAN BAR ASSOCIATION, INTERNATIONAL COLLEGE OF SURGEONS, AMERICAN ACADEMY OF FORENSIC SCIENCES and the INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. He has been a member of the Editorial Staff of the *Journal of Criminal Law, Criminology and Police Science* since 1942, and is the author of *Homicide Investigation* published in 1944 by Charles C Thomas, Publisher, now in its eighth printing; co-author of the chapter on Legal Medicine in *Piersol Cyclopedia of Medicine.*

DR. RICHARD C. STEINMETZ—Dr. Steinmetz took his A.B. degree at Muhlenberg College in 1926, the M.A. at Indiana University in 1929 and the Ph.D. at The Ohio State University in 1933. He has engaged in additional graduate work at Bates College, Lehigh University and the University of Florida, in addition to considerable research at the Ohio State Penitentiary over a five year period. He selected for the Ph.D. dissertation problem—*Individual Studies of Ohio Penitentiary Parole Violators.*

Dr. Steinmetz was employed as Chief Investigator for the Mill Mutual Fire Prevention Bureau, Chicago, from 1935 to 1946, and since that time has been known to his friends the nation over as Chief Special Agent for the Mutual Investigation Bureau, Chicago. The Mutual Investigation Bureau is a division of the Mutual Loss Research Bureau, an association supported by a number of mutual fire insurance companies and established for the purpose of giving aid and assistance in the fight against those who commit arson or kindred crimes or who attempt to defraud the companies and policyholders.

In addition to his regular duties, Dr. Steinmetz served as President of the INTERNATIONAL ASSOCIATION OF ARSON INVESTIGATORS. He is Editor of the *News Letter* of the Association; Associate Editor of the Police Science Section of the *Journal of Criminal Law, Criminology and Police Science;* lecturer in the Department of Police Administration at Michigan State University and at numerous fire and police training schools and seminars in many parts of the country; a member of the Committee on Arson of the INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE and a member of the Committee on Arson of the INTERNATIONAL ASSOCIATION OF FIRE CHIEFS.

DEAN O. W. WILSON—Criminologist and educator, Dean Wilson took the A.B. degree at the University of California in 1924. He began his career in police service as a patrolman in the Police Department of Berkeley, California, where his administrative talents were early recognized by Police Chief August Vollmer. Subsequently, he became Chief of Police at Fullerton, California and later, Chief of Police in Wichita, Kansas, from 1928 to 1939. He has been Professor of Police Administration at the University of California since 1939 and Dean of the School of Criminology at that institution since 1940. His academic program in the field of law enforcement administration has set new standards for police training at the University and College level.

Dean Wilson served as a police consultant for the Public Administration Service of Chicago from 1939 to 1943, and has conducted a substantial number of police surveys and reorganizations in various parts of the United States. During 1937, he was lecturer in the Bureau for Street Traffic Research at Harvard University. He served as Lieutenant Colonel (later advanced to the rank of Colonel) in the Corps of Military Police, A.U.S., in Italy and Germany 1943-1947, and on at least two different occasions has made a study of Police Systems in European countries. He was President of the SOCIETY FOR THE ADVANCEMENT OF CRIMINOLOGY 1941-1949 and is the author of *Police Records* (1942); *Police Administration* (1950); *Police Planning* (1951), and a contributor to professional journals. He was recently appointed by the AMERICAN BAR FOUNDATION of the AMERICAN BAR ASSOCIATION to direct the police phase of a nation-wide Survey of Criminal Justice Administration.

CHIEF BERNARD C. BRANNON—Chief Brannon entered police service at Kansas City, Missouri in 1932, and was appointed Chief of Police in July, 1952. He has served as an officer in the U. S. Navy; as General Investigator, U. S. Navy Department, and was Associate Professor of Police Science at the University of Missouri.

Chief Brannon studied at Rockhurst College and Kansas City University and took his LL.B. degree from Vanderbilt University School of Law. He is a member of the Missouri, Federal and U. S. Supreme Court Bars; AMERICAN BAR ASSOCIATION; PHI DELTA PHI INTERNATIONAL LEGAL FRATERNITY; INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE, and SOCIETY FOR ADVANCEMENT OF CRIMINOLOGY. His name appears in *Who's Who in American Education* and *Who's Who in the Midwest.*

Railroad Police

(Continued from page 33)

ficient in their use. In fact, railroad police officers have frequently been highly successful in national and international pistol matches and their marksmanship is regarded for its full worth.

The Protective Section of the Association of American Railroads

In any review of the organizational structure of individual railroad police departments and of the progressive steps taken over the years in bringing those departments to a point of peak efficiency, there must necessarily be included some mention of their closely knit relationship one with the other, department with department, railroad with railroad, for herein lies the key to the fruition of all the separate plannings. And in this connection undoubtedly nothing has served the cause more directly than the establishment of the Protective Section of the Association of American Railroads in 1921. While other national groups existed to some extent prior to that date, the records would indicate that it was not until the Protective Section was organized and committees assigned that the true spirit of cooperation began to pay dividends.

Through this central agency the railroad police departments as a whole participate in reports, meetings and other functions that serve the interests of all. One such publication, as an example, is a monthly *News Letter* which supplies timely information as to various criminal activities, the records and other details covering thieves, swindlers, con men, etc., who have been apprehended or are now wanted. Where the occasion requires, special issues of this publication are sent out immediately to post all department heads on some particular event. It may be that some individual with a mania for attempting to wreck trains has escaped from a mental institution, or the report may have to do with the theft of a sizable number of railroad vouchers or pay checks. Not infrequently these Special News Letters combined with the regular issues have greatly assisted in the location and arrest of a party guilty of some crime against the railroads. The data carried in this publication are submitted by the individual railroads, and copies go to all offices of the Federal Bureau of Investigation and numerous municipal and state police departments as well as the railroads' representatives—again bearing out the close working relationship with all agencies.

As far as meetings are concerned, under the sponsorship of the Protective Section a total of 24 Regional Meetings are held each year in various railroad centers throughout the United States and Canada, providing opportunities for open discussion of mutual problems in given territories. In addition, these occasions permit for a closer liaison with local officials of other law enforcement agencies, including the Military, all of whom are regularly invited to participate.

Aside from these, there is the Annual Meeting at which many matters of policy, procedure and how yet to improve the work of the railroad police generally are discussed at length. At this meeting there are talks on pertinent subjects by representatives of the railroads and other agencies. The progressiveness of this material is manifested by even the few titles indicated below:

Preparation of Cases for Trial, and Evidence for Prosecution
Psychology and Crime Prevention
Science in Police Work
Railway Police Training
Communist Activities
Use of Radio in Railroad Police Cars
Identification of Bogus Money
Fingerprinting

Other services of the Protective Section include the National Railroad Police Academy already mentioned, a full-scale School Safety Program, representation on behalf of the railroad police at various conferences, etc., all toward assisting in every possible way the singleness of purpose which is the keynote of railroad police work.

There is no denying that this integral part of the overall police profession has come a long way in attaining the status it now holds. Within an ever modernizing and expanding industry there is no room for standing still, no room for basking in the satisfaction of a good job done today—not when tomorrow already casts its shadow of new problems and previously unforeseen considerations. Certainly no tomorrows were ever as formidable as those the first railroad police officers faced before the turn of the century. The fact that railroad police have made the strides they have is an accepted tribute to their determination, courage, and profound faith in the future.

No closing comments would be more to the point in this respect than those made at an Annual Meeting of the A.A.R. Protective Section some years ago:

> There is little question in my mind that there is any other profession or line of endeavor which is more important than police work, and in offering this statement I need only submit to your imagination the picture of any railroad or city without a police force. Without policing there could be no security of property or personal rights and the primitive system of "Might is right," to which none of us would willingly revert, would prevail. Compliance with all federal and state statutes, both criminal and civil, is enforced only through the powers of the police and without the able and impartial execution of this power our Congress, our State Legislatures and our courts would be of no avail. I ask you, therefore, if there can be any greater responsibility than the enforcement of the laws of civilization and the insuring of the rights of all the people, whether they be weak or strong, to live and enjoy the rights and privileges of this great nation, other than by force. We are often reminded of the great influence exercised in promoting and maintaining our civilization by our educational system and our churches but I do not believe there is any regulated influence which brings about this desirable state of civilization more than the police as a whole, and as a part of this great body of police upon whose shoulders rests the responsibility of insuring our civilization, are the railway police.

Rating and Testing Policemen

By George J. Dudycha

EDITOR'S NOTE: *Professor Dudycha received the B.A. degree at Coe College in 1925; the M.A. at the State University of Iowa in 1926, and the Ph.D. at Columbia University in in 1936. He is now Professor of Psychology at Wittenberg College, Springfield, Ohio. Professor Dudycha is identified with a number of scientific organizations, including the designation as Fellow in the American Psychological Association, the Society for the Psychological Study of Social Issues; and the American Association for the Advancement of Science. He is a Diplomate in Counseling certified by the American Board of Examiners in Psychology and the author of some sixty-two publications. Among his most recent contributions is that of editor and joint author of the book,* Psychology for Law Enforcement Officers, *published in 1955 as a part of the Police Science Series by Charles C Thomas, Publisher.*

Professor Dudycha has long been interested in the application of psychological principles and techniques to police problems and in the present article, he deals with a subject of primary concern to law enforcement administrators and personnel.

THE notion that anyone can do any job well was discarded long ago. It is common knowledge that to do a task well, or even acceptably, requires some ability, skill, or special aptitude. Hence the selection of people for various jobs, including police work, must be according to the assets they possess. If this selection is to be made intelligently, two things must be considered. First, there are the requirements of the job. What must the person do? How do his duties or tasks vary? What is required of him most often, and what least often? These questions are answered by a job analysis that not only enumerates but evaluates the tasks assigned to the worker. One must first know what the job is before a suitable worker can be found to do it.

The second, and equally important factor in placement is knowing the assets of the worker. Actually this is a much more difficult task than that of job analysis. It is difficult because completely adequate ways of evaluating abilities and aptitudes are not available. It is true that some of the methods devised by psychologists are of considerable help, but they must be applied with caution and skill.

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TRADITIONAL METHODS OF EVALUATION

The Interview: One of the commonest methods used to select people for job placement is the interview. Unfortunately the interview is too often an unsystematic period of questioning during which an employer "sizes up" a prospective employe. Decisions are often made on the basis of vague impressions, unfounded prejudices, or the answers to two or three trick questions. Although confidence in such unsystematic and unscientific methods is often high, results of their use, when measured against on-the-job success, are often disappointingly low.

This is not to say that the interview is an utterly hopeless method of obtaining information. On the contrary, it is a valuable method when used systematically. The interview is effective when the interviewer employs carefully phrased questions, that are presented in an order that is directional (leads to a goal or end) and that reveal pertinent information. Like many other things, interviewing is a skill that produces results in proportion to the skill of the user. Hence the value of interview data depends, to a great extent, on the interviewer.

The Personal Data Sheet: A second common method of gaining information about an applicant is the personal data sheet. The information obtained by this procedure includes such items of personal data as age, physical characteristics and handicaps, marital status, etc., educational training, and work history. Information of this type is of little value in the selection of applicants unless the significance of the various items is known. For instance an applicant from which age group makes the most effective policeman? Are married men preferable to single men? Are men with families more desirable than married but childless men? More specific information with regard to these and related questions is needed. Hunches are not enough.

That personal data can be of considerable value in the selection of applicants was found in a study of insurance salesmen. In one group of superior salesmen, 94% were married and only 6% were single. Furthermore those successful salesmen averaged about 2.5 dependents, whereas unsuccessful salesmen had fewer dependents. Personal data of this type can be significant.

Although personal data have long been collected and used as a partial basis for the selection of law enforcement officers, little scientific evidence of the significance of such data seems to be available. More careful follow-up work of applicants who are accepted is needed so that the future selection of officers can be more scientific and efficient.

Information Testing: Another widely used method of selecting law enforcement officers is information testing. These tests, using multiple-choice, true-false or short answer questions, reveal the applicant's general information and knowledge of the local situation. Information given by these tests must, without a doubt, be given appropriate weight in the selection of law enforcement officers, for knowledge of laws, ordinances and local places is essential for their success.

Valuable as information tests are in the selection of law enforcement officers, undue emphasis should not be placed on them to the near exclusion of other methods of selection. It is possible that a man might make an excellent score on an information test and yet make an undesirable officer. Another man with less information but possessing other desirable qualifications not measured by an information test might be an outstanding success. Information is not the sole criterion of success. A deficiency in information can be remedied, but one of intelligence or personality can not. Other things equal, a man who has the required information is preferable to one who does not have it, but a man who lacks specific information must not be discarded too quickly, especially if he possesses other assets that will make him a valuable officer.

RATING PROCEDURES

The Purpose of Rating Scales

Rating scales are aids used to get systematic evaluations of a person's character, personality and behavior traits. They are not tests. They are merely devices that guide the person making the evaluation in his thinking and facilitate the recording of his judgment. It is in this regard that ratings are superior to letters of recommendation. Several letters of recommendation written concerning the same person may cover very different points, no two of them commenting on the same personality or behavior trait. Hence any evaluation in the one letter is not corroborated by statements in the others. In the rating scale, on the other hand, each trait is evaluated by each of the persons making a rating and hence there is comparability of judgment.

Rating procedures are used for various purposes. Sometimes they are used to obtain information concerning applicants for a position, and at other times to secure information that can be used as a partial basis for promotion. Sometimes ratings are compared with previous ratings on the same person to indicate progress made. They are also used to make comparisons between individuals engaged in the same work. Whatever use is made of them, they must include those traits that give pertinent information. It is useless to rate a police officer on interest in puppet making, since puppet making is unrelated to police work. However, to rate him on his promptness is completing assignments, his dependability in executing orders, his skill in dealing with adolescents, and other similar things related to police work is logical.

Rating procedures are means to an end. To achieve that end one must first clearly define the problem. If the problem is one of selection and placement, it is one thing; if it is a problem of promotion in rank, it is another. The purpose determined, the next step is to select pertinent traits. This can be done only after an adequate job analysis is made. The number of traits selected should be kept at a minimum with no unnecessary traits or "deadwood" included. When these principles are observed a usable instrument is developed.

The Types of Rating Procedures

Rank-order Procedure: One of the simplest, but not the best, methods of evaluating people is the rank-order method. This is always a matter of comparing each person in a group with every other member and placing them in order from the one who is the most outstanding on down to the one who is least outstanding. Hence, the rank-order method applies only to groups; it is impossible to rank one person. Generally it is easier to place the people at the head and the foot of the list than it is to evaluate those who are between. Certainty in the evaluation of the people in the middle is often low. Therefore when many people must be placed in rank order it is advisable first to group them into five or six general groups and then to arrange the people in each subgroup. This may not greatly increase the value of the ratings, but it does facilitate the task.

Check-list Scales: This evaluation technique is constructed in either of two ways; either a list of pairs of adjectives is used, or a series of graded phrases or statements is employed. In either case the rater checks the items in the series or the pair that in his judgment best describe the person rated.

Category Scales: Several very similar scales can be listed here, all of which are alike in that the person rated is placed in one of several groups or categories, of which usually there is an odd number. The *alphabetical scale* consists of a series of letters, often A to E, in which A indicates much of a trait, C an average amount, and E little. The *numerical scale* is the same except that numbers are substituted for letters. The *descriptive-adjective scale* uses a series of descriptive words or phrases, such as, very superior, superior, average, inferior, very inferior. The *percentage scale* employs a series of percentages extending from zero to 100, in steps of 10's of which 50 is average.

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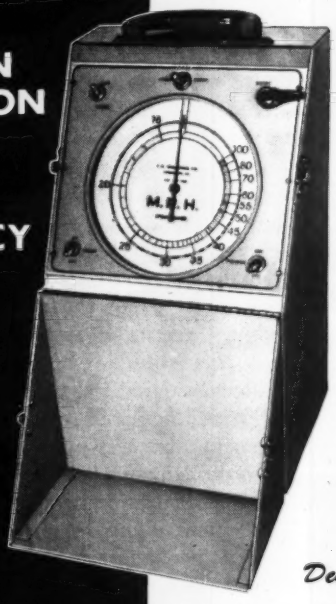

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In each of the category scales the number of categories used varies from three to many, but five or seven seems to be satisfactory for most purposes, with nine or eleven as the maximum. When the number is too small the rating is too rough and undiscriminating. When, on the other hand, many categories are used, raters are apt to be confused.

Advantages and Disadvantages: The rating procedures described above have this in common: they are easy to construct, simple to administer, quick to give, and the results are easily tabulated. In spite of these advantages, they have these drawbacks: categories often are not well defined and hence interpreted differently by various raters. These scales tend to invite casual evaluation and arbitrary judgment. Furthermore, since the categories are discrete or separate, they too often simply show that there is a real, and perhaps substantial, difference between one category and the next, which is not always the case.

THE GRAPHIC RATING SCALE

All things considered, the most acceptable rating scale is the graphic rating scale. It consists of a line, usually about five inches long, that is divided into a large number of small divisions so that it looks much like a foot-rule. Beneath this line is a series of descriptive words or phrases that indicate different degrees of the trait rated. At the left of this graphic line and series of descriptive words and phrases, is the name and brief description of the personality or behavior trait considered. At the right is a space in which the rater can indicate that he has had no opportunity to observe the ratee with regard to this trait. The advantage of this latter feature is that it encourages the rater to judge the ratee only when he is competent to do so. When the rater is sufficiently acquainted with the ratee to make a judgment, he places a check-mark somewhere along the line nearest to the descriptive word or phrase that in his judgment best describes the person under consideration.

The number of traits rated at any one time by this method varies with the purpose and the information desired. Usually at least six traits are listed and often the number is as large as twelve to fourteen. Obviously it is unwise to require a rater to indicate his judgment on thirty or 40 traits. Hence the number should be limited to those that are essential and that can be judged reasonably well. Generally only those traits are included in a rating scale that can not be evaluated by objective tests. Whenever tests can be used they are preferable to ratings because test data are generally more reliable than ratings.

A final comment concerning the construction of the graphic rating scale concerns the descriptive words and phrases used. Several items need emphasis. First, the number of descriptive words or phrases should seldom, if ever, be fewer than four. Too few categories gives too little opportunity for discriminating judgment. Also it is best to have an odd number. If there are five or seven degrees of judgment the middle one is taken as the average. More than this number of categories, as nine or 11, become increasingly cumbersome to use and force the rater to attempt finer discriminations than he may feel able to make. Furthermore a large number of degrees of difference can not be placed conveniently under a five-inch line, and even if they are, some of them will be used seldom.

A second caution with regard to the descriptive words and phrases is that they must represent different degrees of only *one trait*. It is all too easy, when selecting the descriptive phrases, to shift from one trait to another as one progresses from one extreme of the scale to the other. Finally, one must make certain that the categories selected do indicate different degrees of the trait rated.

The Reliability of Graphic Rating Scales

Types of Raters' Errors: There are two common errors of judgment found among raters. The first is the *perseveration error* (also called halo effect) in which the rater persists in judging a person as high, or average, or low with regard to all traits, largely because he thought of him as high, average, or low with regard to all traits, largely because he thought of him as high, average or low on the first trait. True a person may be exceptional in a number of traits, but consistent rating of an individual as exceptional with regard to all, or nearly all traits, should make one alert to the possible presence of bias in the rater's judgments. To say that because a person is very intelligent, he should know enough to be dependable; and because he is dependable, he must be honest, etc., strikes one as a case of perseveration error.

A second rating error is known as the *generosity error*. It is true that a rater can only rate people with whom he is acquainted. This acquaintance, however, may bias him favorably (or unfavorably) toward the person rated, and hence he may regard him more favorably than he should. In other words, he is generous in his ratings. This is even more true when self-ratings are used.

Increasing the Value of Ratings: The first essential in securing reliable ratings is using trained raters. Raters who are uninformed as to the essential principles of rating, are almost certain to give less reliable ratings. Among other things attitude is important. The rater must seek to give his considered judgment rather than an impulsive one. Furthermore the rater's judgment must be discriminating. He must recognize that most people are average with regard to any trait and that the farther one departs toward extremes, the fewer people should be so rated.

When rating a person on such traits as cooperativeness, punctuality, interest in people and other similar traits, the rater should recall as many instances in which these traits were exhibited as possible. Ratings based on vague recollections are of little value. However, ratings based on knowledge of Patrolman Johnson's willingness to accept difficult assignments, to collect information when off duty, and to volunteer for dangerous and difficult tasks, are valuable because they are based on specific information.

A final caution deals with perseveration and generosity

Worth Remembering—

The first consideration should always be for the injured victim; not for the remains of the expired. (From Young, C. B., Jr.: *First Aid and Resuscitation.*)

errors. These can be avoided, in part, by forcefully calling raters' attention to the nature of these errors and the need for avoiding them. Besides this two other things are done. The first is to stagger the scales for the several traits by placing the high or desirable end of the scale for the first trait to the right, that for the second trait to the left, for the third trait, to the right, etc. This breaks the raters' tendency to place all checks at the right or left ends of the scales.

Another way to eliminate perseveration errors is to scramble the descriptive words or phrases describing the degrees of a particular trait. Thus, instead of the weakest description being at the left and the strongest at the right, with intervening ones showing a continuous graduation, the descriptions are scrambled so that adjacent descriptions are not continuous. This forces the rater to search for the best descriptive words or phrase and hence discourages perseveration errors. On the whole this method is not preferred by raters because it is confusing and also because fine gradations of judgment can not be indicated. In effect it is a scrambled category scale, and hence loses some of the value of a graphic rating scale.

A final way to increase the value of ratings is to secure judgments from several raters who are about equally well acquainted with the person whose traits are rated. In this way a composite judgment can be obtained that, in most cases, is more reliable than a single judgment.

Interpretation of Ratings

Determination of Scores: The value of ratings can be increased by converting the raters' estimate into scores and then determining the total score for all the traits. The method of scoring ratings varies somewhat with the type of rating procedure used. In the case of rank-order method, for example, all one needs to know is the position of any given individual in the group, and the size of the group. When using the alphabetical scale, arbitrary values are assigned to the letters which makes it similar to a numerical scale. In the case of the descriptive-adjective scale, values, in steps of 10, are assigned to the various descriptive terms of the scale, thus treating it as a percentage scale. The numerical values used in any of the separate scales are then cumulated, or averaged for the various traits, and this number is the final score for the person on the total scale.

Preference for the graphic scale was indicated above. One of the reasons for this is the method of scoring generally used. When using the graphic rating scale, the rater places a check-mark somewhere along the line of the scale to indicate his judgment. Since this check-mark need not be placed immediately above a descriptive word or phrase, but in an intermediate position between them, the rater can be more discriminating in his judgment. In other words, he need not place the person in one of several categories as in category scales, but places him somewhere along a continuous scale that extends from one extreme of the trait to the other. The usual method of scoring this scale is to measure the distance (in terms of millimeters) that the check-mark is from the lower end of the scale. When the scale is divided into 100 to 130 divisions, marked at 10-point intervals, the scoring is greatly facilitated. If a total score on all the traits is combined an average of the scores for the several traits can be determined. On the whole this is somewhat questionable. It is better to compare individual traits than averages.

Evaluation of Scores: We pointed out above that the judgments of several raters, preferably three, are superior to the evaluation of a single rater. This is particularly true when the raters agree fairly well in their individual judgments, but when they do not agree reasonably well, discretion must be used.

As an illustration, let us take the case of a patrolman who was rated by three superior officers. All three officers agreed very closely concerning the patrolman's initiative in that each of them rated him as very superior in this respect. Their close agreement strengthens one's confidence that the patrolman is outstanding in this regard. As to leadership, however, two of the officers rated the patrolman as moderately superior in leadership, but the third officer rated him as definitely inferior. If these three ratings are averaged, the patrolman's leadership score is

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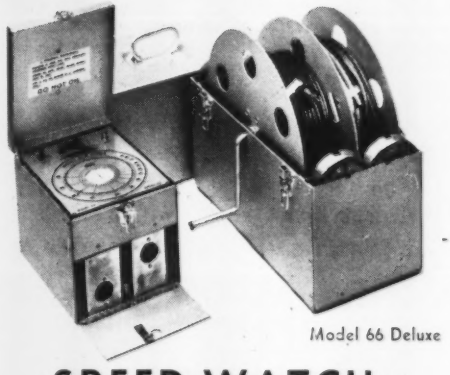

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NAME_____

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about average, in spite of the fact that two of the raters judged him as superior. In this case it may be better to accept the judgments of the two raters who agree closely, as representative, rather than the composite of all three. On the trait of dependability the patrolman was rated as very superior, average and very inferior by the three raters. Averaging these three ratings gives the patrolman an average rating on dependability, but slight confidence can be placed in this average since the three raters disagreed so markedly. The best approach in this case is to secure additional ratings from one or more competent judges and see how their judgments compare with the first three. Then if some agreement is present between the ratings of several of the judges, their ratings can be accepted as possibly more representative than that of the original raters.

Sometimes raters are requested to indicate their confidence in their own ratings. When this is done, these estimates of confidence are used as a means of weighting ratings when marked disagreements between raters develop.

Police Rating Scales

The type of rating scale used in police work at any given time depends, in large part, on the purpose for which it is used, the type of information desired, and the opportunity for rating. Whether the purpose is one of selection, evaluation, or promotion is also of major importance. No matter which type of rating scale is used, the value of the results obtained depends on the care with which the rater makes his judgments, the extent of his acquaintance with the person rated, and his competence in observing the behavior of others. It must be remembered that any rating device is merely an aid used to obtain an evaluation of a person in a systematic way. The following rating scales, adapted for police work, incorporate some of the features regarded as effective and desirable.

NEW BOOKS FOR POLICE OFFICERS

- DEFENSE INVESTIGATION by Edward N. Bliss, Jr., pub. '56, 336 pp., Cloth, $6.50
- FROM EVIDENCE TO PROOF: A Searching Analysis of Methods to Establish Fact by Marshall Houts, pub. '56, 416 pp., 150 il. (2 in color), Cloth, $7.50
- FUNDAMENTALS OF CRIMINAL INVESTIGATION by Charles E. O'Hara, pub. '56, 744 pp., 98 il., Cloth, $8.50

CHARLES C THOMAS · PUBLISHER
Springfield · Illinois

POLICE RATING SCALE

The Selection of Patrolmen

Name of person rated ..... Date ..... Are you related to ratee? .... If so, how? .....

Address ..... Rater's signature .....

When first acquainted with ratee? ..... Position .....

Nature of contact with ratee ..... Address .....

Listed below are several traits generally accepted as essential to success as a patrolman. You are requested to give your careful and considered evaluation of the above applicant concerning these traits. Before making your judgment concerning each trait, recall as many specific incidents as possible in which the trait was observed in the applicant. Indicate your judgment by placing a check-mark somewhere along the line of each scale nearest the word or phrase that best describes the applicant. Intermediate positions between the descriptive categories may be used. If you have had no opportunity to observe a given trait in the applicant, check the blank marked "unknown."

I. *Initiative.* Ability to get results through original and somewhat uncommon adaptations of experience. Attitude toward adopting improved methods.

Very original	Often resourceful	Accepts new ideas willingly. Occasionally suggests new ideas.	Routine worker. Needs direction.	Very unprogressive. Needs constant direction.	UNKNOWN

II. *Practical Judgment.* Ability to grasp a situation, think clearly, and arrive at conclusions.

Poor grasp of situation. Recommendations more wrong than right.	Misinterprets some facts. Makes occasional errors in judgment.	Judgment usually sound and reasonable in ordinary circumstances.	Grasps situation quickly. Thinks logically.	Exceptionally logical thinker. Exceptional grasp of essential factors.	UNKNOWN

III. *Ability to Learn.* Quickness and ease in learning new skills, methods and ideas.

Exceptionally quick learner.	Learns quickly but with effort. Mastery good.	Learning speed average. Mastery fair.	Slow to learn. Mastery below average.	Very slow to learn. Mastery poor.	UNKNOWN

IV. *Ability to Follow Directions.* Speed and accuracy in executing written and oral instructions.

Follows only simplest directions without help.	Follows ordinary directions with help.	Follows directions reasonably well with few errors.	Follows complex directions with occasional help.	Follows complex directions accurately without help.	UNKNOWN

V. *Social Sense.* Insight into social situations and behavior. Understanding of people.

Exceptionally adept in meeting and dealing with people.	Meets most people well and understands their intentions.	Adjusts well in most social situations with which familiar.	Somewhat awkward in social situations. Misunderstands intentions of some people.	Commits many social blunders. Frequently misinterprets people's intentions.	UNKNOWN

VI. *Cooperation.* Ability to work well with others.

An obstructionist.	Indifferent to others' needs and wishes.	Cooperates much of the time and fairly willingly.	Works harmoniously with others. A good team worker.	Outstandingly cooperative. Actively promotes harmony.	UNKNOWN

VII. *Attitude Toward Others.* Fairmindedness and courtesy.

Intensely interested in welfare of others, even beyond the call of duty.	Actively concerned for the welfare of others.	Shows conventional concern and courtesy.	Self-interest strong. Often discourteous.	Callous to the needs and welfare of others.	UNKNOWN

VIII. *Attitude Toward Work.* Interest in work; desire to do well; industry.

Does least possible. Complains much.	Disinterested plodder.	Moderately interested. Work fairly satisfactory.	Interest in most aspects. Takes pride in work.	Exceptional in interest, application and achievement.	UNKNOWN

IX. *Emotional Control.* Ability to control emotions under ordinary conditions of stress.

Exceptionally even-tempered.	Seldom angry or depressed. Regains control quickly.	Emotional control satisfactory except when under stress.	Becomes angry or depressed easily. Recovers slowly.	Emotionally uncontrolled. Often angry or depressed.	UNKNOWN

X. *Dependability.* Extent to which he can be relied upon to complete tasks acceptably and promptly.

Requires supervision. Seldom completes work on time.	Easily satisfied with quality of work. Often behind schedule.	Usually completes tasks acceptably and promptly. Some supervision necessary.	Reliable. Gives attention to details. Occasional supervision needed.	Completes all assignments most satisfactorily. Gives close attention to details.	UNKNOWN

XI. *Accuracy.* Ability to avoid error when completing an assignment.

Always accurate and precise.	Makes few errors and corrects most.	Usually accurate but unaware of some errors.	Makes errors. Assumes errors are unimportant.	Shows slight concern for accuracy.	UNKNOWN

INTELLIGENCE TESTING

Application to Police Officers

Although the first attempt to measure intelligence was made a half century ago, it was not until our entrance into World War I that any systematic effort was made to measure the intelligence of adults. It is significant that soon after the close of that war, when the Army Alpha Intelligence Test was given to civilian groups variously employed, that policemen were among the first tested. Thurstone, in 1922, published some of the first data on the intelligence of policemen. In the three decades since this first venture in testing the intelligence of policemen, many communities have adopted the intelligence test as a standard instrument for the selection of police officers. Less scientific techniques are still used, however, and the intelligence test is not used as a screening device nearly as widely as it should be.

Recommended Intelligence Tests

The following tests are some of those more widely used for testing civil service applicants. These are not listed in an order of merit because the features each has may make it more desirable in one case and less desirable in another.

The *Army General Classification Test* (AGCT), that was administered to more than twelve million inductees during World War II, is now available in a "Civilian Edition." This test aims to measure general learning ability by testing for several factors: verbal factor (vocabulary), number and reasoning factors (arithmetic word problems), and space factor (block counting). The working time for this test is forty minutes, and the raw score can be converted into standard or into percentile scores. This test has definite possibilities in police work.

Another recently developed test, well suited for testing adults, is the *New California Short-Form Test of Mental Maturity,* Advanced Form.

The *Ohio State University Psychological Test* (Form 21) differs from many other intelligence tests in that it has no time limit and is a power test. The testee is encouraged to attempt all the items of the test and to take as much time as is needed. Since this test emphasizes difficulty rather than speed, it is well suited for testing people who are slower and more deliberate in their thinking and action.

Another widely used series of tests is the *Henmon-Nelson Tests of Mental Ability.* Each test has ninety items arranged in the order of difficulty, with a time limit of thirty minutes. Either the high school or college forms can be used depending on the academic level of the applicants tested.

A group of tests that have proved valuable through long use are the Otis tests. The *Otis Self-Administering Tests of Mental Ability,* Higher Examination, that is also published under the title of *Otis Employment Tests,* has a working time of thirty minutes, but norms are also available for a twenty-minute time limit. The *Otis General Intelligence Examination* is a self-administering test that requires apporximately thirty minutes to complete. The Gamma Test of the *Otis Quick-Scoring Mental Ability Tests* also has a working time of thirty minutes. A mental ability test associated with the above, because of items in some of the forms are taken from the Otis tests, is the *Personnel Test* by Wonderlic. This is one of the more recently constructed tests that is well received. Perhaps its chief advantage is that it has a short working time of twelve minutes. It can also be given with unlimited time if so desired.

Test originally used for testing policemen, and still used, is the *Army Alpha,* now available in several forms. Among these forms are: *Revision of Army Alpha Examination,* Forms A and B, that requires thirty to forty minutes to complete; the *Revised Army Alpha Examination,* Forms 5 and 7, that requires thirty minutes, and the *Revised Alpha Examination,* Form 6, Short Form, that requires only fifteen minutes.

The Intelligence of Policemen

Minimum Requirements: How intelligent should a policeman be? Quite obviously this question has not been answered satisfactorily. Suggestions, in terms of Army Alpha Scores, have been made from time to time, however. Vollmer, in the early 1920's suggested that a raw score of 75 on the Army Alpha should be a minimum qualification for police work. A score of 75 is the lower limit of the C+ category that extends to a score of 104. Since C, or a score of 60, is average, he placed the minimum requirement slightly above that of the average of the population. In 1924, Telford and Moss, who suggested a number of tests for patrolmen, placed the lower limit at 65, but indicated that they preferred it at 95. Some large cities have set the minimum limit at 100. It is significant that all of these limits are in the C+ category.

Since the early 1920's the trend has been definitely in the direction of raising the minimum Army Alpha scores required. A score of 110 was suggested as desirable in a bulletin published by the International Association of Chiefs of Police in 1938. Some claim that the lower limit should be a score of 120. Both of these latter recommendations place the minimum at the B level. A more recent recommendation in an article in the *Encyclopedia of Vocational Guidance* places the lower limit at a score of 135, which is the lower limit of the A category of intelligence.

These figures indicate a definite and significant trend. It is true that all policemen are not as yet selected according to these high standards, but it is heartening that people are becoming increasingly aware of the fact that much is demanded of the police officer and that the effectiveness of his service to the community depends, in

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part, on his intelligence. Although we can expect a gap between what is recommended and what is required, the fact that higher and higher standards are recommended means that higher requirements will be demanded.

Results Reported: No simple answer can be given to the question: What is the intelligence of policemen? Several things complicate the problem. Many of the studies report the intelligence test scores for applicants rather than for men in service. As already noted, minimum requirements are not uniform and hence the intelligence of police officers in different communities can not be compared directly. Length of service also seems to be a factor.

Reports on the Army Alpha scores made by policemen and by applicants in the 1920's gives averages that range from 55 to 149.3, or all the way from a C to an A rating. A group of sixty-four applicants in San Diego had an average of 76.5, and another group of 113 in Palo Alto had 104.2. A group of fifty students in the Maryland State Police Training School had an average of 100, and a group of 321 students in the Police School in Los Angeles had an average of 116.1. An older study reports that Detroit patrolmen averaged, on the Army Alpha, 71.4, whereas sergeants and lieutenants averaged 55 and 58 respectively. Another early report from Cleveland indicated averages as low as 59 for detectives and as high as 98 for captains. On the other hand, a group of fifteen policewomen in Washington, D. C. had an average Army Alpha score of 144, and a group of twenty-six men in the department in Berkeley an average of 149.3.

More recently the Army General Classification Test has been used. On this test[1] 172 policement had an average AGCT standard score of 109, which is equivalent to an Army Alpha raw score of 70. In 1950, DuBois and Watson reported on a group of 129 applicants selected as patrolmen in St. Louis who had an average AGCT score of 118, which is equivalent to an Army Alpha score of 96.

It must not be inferred that these results are necessarily typical of all police officers employed today. Moreover, we must remember when dealing with averages that a half of the cases fall above and a half fall below the average. Certainly these rather meager data suggest strongly the need for further systematic study of the intelligence of police officers.

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[1] DuBois, P. H. and Watson, R. I.: The Selection of Patrolmen. *J. Applied Psychol.*, *34*:90-95, 1950.

PERSONALITY TESTING

The Need for Testing

The selection of policemen on the basis of intelligence alone is not enough. An applicant may be superior in this regard and still be a dismal failure as a police officer because of other traits he possesses. A single incident, reported to the author by a police chief,[2] is sufficient to illustrate this point.

A group of men, who met specified requirements and passed certain tests were appointed as patrolmen and assigned to the police school for training. After several days of instruction, a call came that a man was found dead in an entryway. To give the men of the school some practical experience in observing the gathering of data and in report making, the chief instructed that the students be taken out on the call in cars. At the scene they were deployed at such a distance so as not to interfere with the actual investigation. On arrival the officers found a man lying dead in a pool of blood in an entryway. Investigation revealed that the victim, an epileptic, was descending the stairs when he had an epileptic seizure which caused him to fall from a landing over a banister to the entryway. During the fall, the man struck his head, and the blow caused his death.

On the way back to the station, several of the student patrolmen observed that one of their number was not only acting peculiarly but that he was also saying odd and meaningless things. The next day the man's behavior was even more bizarre than the day before. He told a variety of tales, quite obviously false, that were so fanciful that even laymen were certain that something was wrong. The man spared the department further trouble and embarrassment because he was discharged immediately.

It is certain that this man was not good officer material, and it was fortunate for the department that this was discovered early. Had this man not been taken to the scene of the accident, which made his psychoneurotic condition evident, he might have continued as a patrolman for a considerable time with no one aware of his difficulty. Evidently a crisis situation, for which he was not prepared, would have made his abnormality apparent, but this situation might have been crucial for the welfare and safety of others. The hazard caused by this man's failure in a crucial situation can not be overestimated.

It is imperative, then, that people who are emotionally unstable, predisposed toward mental abnormality, or actually psychotic be eliminated early in the selection process. This, however, is not easy. People do not wear placards on their backs stating, "I am not normal"; neither are there any identifying marks, nor do they "Show it in their faces." The signs of abnormality are much more subtle; they are found in one's behavior.

Because a policeman works with people, some of whom are abnormal, he himself should be as free of peculiarities and quirks as possible. As a means of finding normal people for law enforcement work, a psychiatric examination is recommended. When the list of applicants is long, this procedure is time consuming and expensive, and hence quicker and less expensive screening devices must be used.

Approaches to Personality Testing

The neurotic patrolman in the above illustration showed his abnormality after being placed in a situation of considerable stress. Naturally it is not always possible to do this, nor will the same stressful situation precipitate abnormal behavior in the people who have such tendencies. In view of this, the *stress interview* originally used in Germany and to a limited extent with police officers here, has merit. The purpose of this method is to place deliberately the applicant in a situation that creates stress of a verbal and motor sort, and then to observe and rate the person on various characteristics. Although its use has been limited, the stress interview has possibilities and does merit further development.

A second approach, used to a limited extent in the selection of policemen, is the *Rorschach Test* which is a projective technique. It is a clinical instrument, consisting of a series of ink blots into which meaning is read, that throws light on personality traits and particularly on abnormal tendencies. A group of twenty-five New York City patrolmen participated recently in a research study in which the Rorschach test was used. More data are needed before generalization is possible. One of the chief disadvantages of this test is that a highly trained specialist must administer, score and interpret it.

The most easily employed approach to personality testing is with the questionnaire-type of test. Tests of this type are widely used in both education and industry. One of their advantages, in addition to the light they throw on personality traits, is that they are easily and quickly administered to large groups, and that they are simple to score. Interpretation of scores, however, must be left to a competent and well trained person.

Some Available Tests: Although the list of tests from which one can select is long, all of the tests are not particularly suited to police work. Selection must be based on the traits important in law enforcement work. The desirability of eliminating applicants with tendencies toward emotional instability or mental abnormality was stressed above. A test specifically designed to accomplish this with army inductees during World War II, and which is now available for civilian use, is the *Cornell Index*. This test does not reveal the type of abnormality, but rather the presence of difficulty. It is recommended as a supplementary aid when interviewing.

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[2] Personal communication from Chief Lawrence Abbott, Springfield, Ohio.

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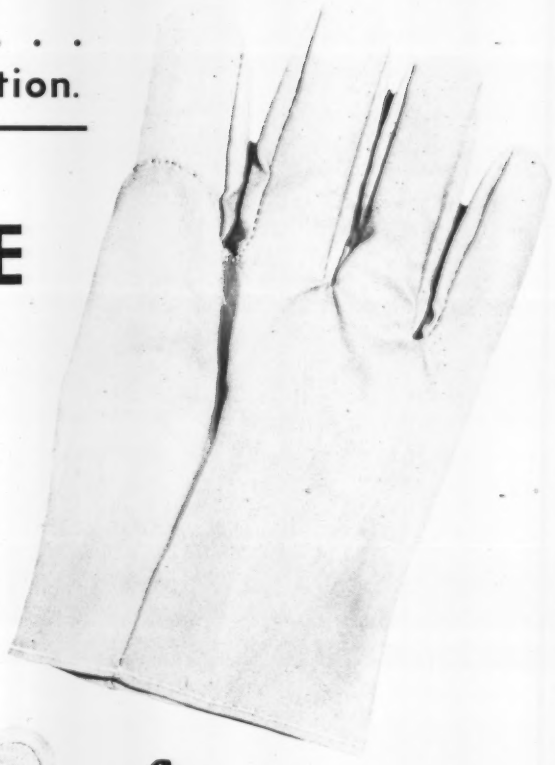

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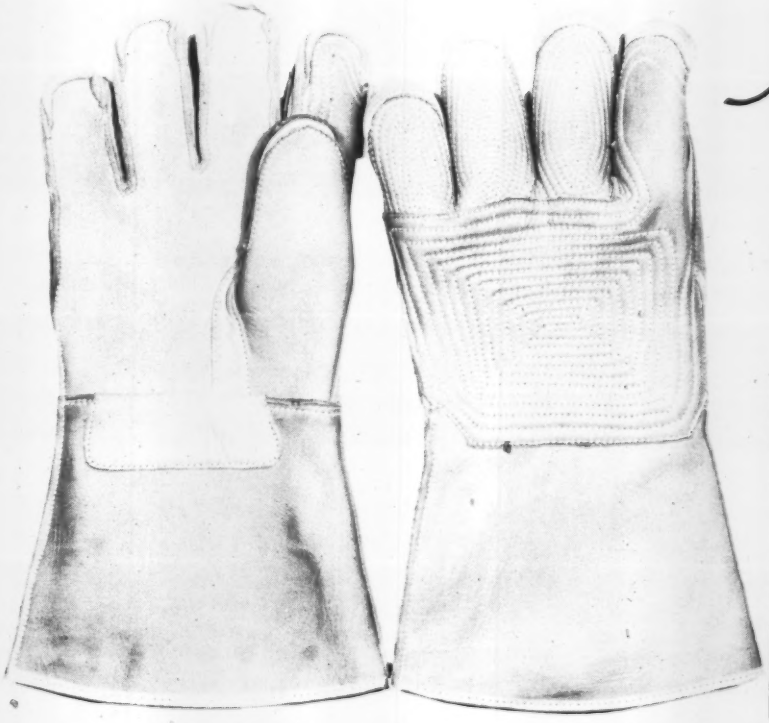

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Information concerning other types of personality adjustment than emotional instability or neuroticism is very desirable when selecting patrolmen. One test that throws light on five types of adjustment that are significant is *The Adjustment Inventory*, Adult Form, by Bell. This test measures home, health, social, emotional and occupational adjustment. A police officer should be rather well-adjusted in his own home life so as to be better able to deal with the types of marital discord and family problems that a policeman encounters in the course of duty. Moreover, he should not be overanxious about his health and not be a chronic complainer. He should be moderately aggressive in his social adjustment and emotionally stable. Although some dissatisfaction with employment can be expected among applicants, marked dissatisfaction should make one alert to the possibility of a chronic condition. Should an applicant's attitude prove to be one of chronic dissatisfaction, he should be rejected because of his possible influence on the morale of others.

The *Personality Inventory* by Bernreuter measures the following traits: emotional stability, self-sufficiency, introversion-extroversion, dominance-submission, confidence in oneself, and sociability. This test has been given to policemen, but more study of its value in law enforcement work is needed. The *Thurstone Temperament Schedule*, recently developed, measures seven temperament traits: active, vigorous, impulsive, dominant, stable, sociable, and reflective. Other tests have possibilities in this field of work, but much experimental work must be done before positive results can be cited.

SPECIAL APTITUDES

McCall, writing in the *Encyclopedia of Vocational Guidance*, lists seven psychological requirements that should be met by applicants for police work. The first of these is concerned with attention and memory: the ability to concentrate on oral instructions, to follow directions, and to have good auditory, and we might add, visual imagery. His second and third requirements deal with reasoning ability: the ability to reason arithmetically, and to make practical judgments in day-to-day situations. His fourth requirement is linguistic—vocabulary; fifth is the perception of relations; sixth is the ability to deal with numbers; and seventh, general adaptability. These are undoubtedly essential requirements. Now let us list some of the available tests that measure these qualities.

Tests for Special Abilities

Tests of Attention and Memory: The two mental processes of attention and memory are closely related in that the extent to which one remembers depends in part on the degree or clearness of attention. The abilities to attend and to remember are very essential in law enforcement work. Law enforcement officers are given instructions daily that must be remembered and directions that must be carried out. Therefore a good auditory and visual memory is essential for success.

It is a common practice, when measuring attention and memory, to give applicants a set of oral instructions that must be reproduced or followed. On the whole a more standardized procedure than this is preferable.

The *Social Intelligence Test*, of the George Washington University Series, is appropriate in this connection because it has a section on memory for names and faces. In all, the test has five parts that measure various aspects of one's social perception and judgment. Hence this test throws light not only on memory for names and faces, which is very important in law enforcement work, but also give information concerning one's knowledge of people and of social situations. This test has had limited use in police work.

A simple method of measuring auditory attention and memory span is to read slowly a series of digits (as: 2 5 9 4 6 3 8) that is repeated immediately after presentation by the person tested. The average adult can repeat seven digits correctly. Repeating nine shows superiority. A common method of measuring visual attention and memory ability is to show the person a drawing with many details (of a traffic accident or similar event) for a few seconds after which he is to recall as many of the items in the picture as possible.

Sometimes the person's recall is measured in terms of his response to a list of questions based on the picture. Some police departments use a series of automobile license plates, exposed briefly one at a time, as a means of measuring attention and memory span.

Perhaps the chief difficulty with each of these tests is that they measure immediate rather than delayed recall. Although there is some delay in recalling the names and faces in the social intelligence test mentioned above, it is hardly long enough to duplicate a real-life situation. Perhaps rechecking the testee on this part of the test

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after several hours and again after a day would give more realistic information.

Tests of Arithmetic Reasoning and Skill: Several different tests can be used to measure arithmetic reasoning, some of which are more comprehensive than others. The *Stanford Achievement Arithmetic Test*, Advanced Form, has a performance time of fifty minutes. The *Moore Test of Arithmetic Reasoning* requires only thirty minutes to give. If only a brief period of time can be devoted to this testing, the *Otis Arithmetic Reasoning Test*, that requires but six minutes, can be used. To measure skill in computation or knowledge of fundamentals the following tests can be used: *Schorling-Clark-Potter Hundred Problem Arithmetic Test*, and the *Rogers Achievement Test in Mathematics.*

Practical Judgment: Perhaps the best test that can be recommended here is the *Test of Practical Judgment*, Form AH, by Cardall. This test was given to graduates of the Traffic Institute of Northwestern University who earned an average score of 212. This places their average at about the 75th percentile of the test. Another test that can be used to good advantage here is the *Social Intelligence Test*, mentioned above, the first part of which deals with judgment in social situations.

Vocabulary and Reading Tests: There are several vocabulary tests from which to select. Among those more suitable for law enforcement officers are: *Columbia Vocabulary Test, Wide Range Vocabulary Test, Cooperative Vocabulary Test*, and the *O'Rourke Survey Test for Vocabulary*. Many of the reading tests measure vocabulary as well as speed and comprehension of reading. Suitable tests are: *Nelson-Denny Reading Test, Minnesota Speed of Reading Examination for College Students*, and the *Iowa Silent Reading Test*, Advanced Form.

The Perception of Relations: Two tests can be listed here. The first, which measures perception of spatial relations, is the *Revised Minnesota Paper Form Board*. The second, the *Minnesota Clerical Test*, deals with the perception of the similarities and differences between pairs of numbers and pairs of names. In both these tests emphasis is placed on speed and accuracy in perception.

Adaptability: The one test specifically designed to measure the adaptability of policemen is the *Policeman Examination General Adaptability Test* by O'Rourke. This test has 100 items and requires one hour to administer.

Interest in Police Work: Long use of the *Strong Vocational Interest Blank for Men* (Revised) has demonstrated that success in a certain occupation depends, in part, on having interests like successful people in that occupation. This is no doubt just as true of policemen as it is of people engaged in other occupations. Since this test can be scored for policemen it can be used as a means of determining whether an applicant's interests are like those of policemen or not.

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The Delinquent and the Value

By James M. Reinhardt

EDITOR'S NOTE: *The following article in more condensed form appeared in the* Nebraska Alumnus *for September 1955, where it attracted much favorable attention. It is altogether appropriate that it be made available to a more extended audience. Dr. Reinhardt is Professor of Criminology at the University of Nebraska. Author and lecturer in the fields of Social Psychology, Criminology and Abnormal Behavior, he brings to the tasks a wide and mature experience in the study of these problems. Recognized as an authority in the field, his services are in continuous demand as a lecturer in law enforcement training programs.*

These assignments have included the Homicide Seminar of the Medico-Legal Division of the Harvard Medical College and since 1945, the National Police Academy of the Federal Bureau of Investigation, Washington, D. C. He is the author of Sex Perversions and Sex Crimes *now on the press and scheduled for early publication as a part of the Police Science Series published by Charles C Thomas, Publisher.* Watch for *a second article in a forthcoming issue from Dr. Reinhardt's pen written exclusively for* POLICE *under the title,* Sadistic Murder.

I SHALL attempt to deal with juvenile delinquent behavior, somewhat theoretically, as an expression of individual need in a unique cultural situation.

I am defining need as something the organism itself requires. The need may or may not be momentarily in the forefront of consciousness. It may be "legitimate" or "illegitimate," in the meaning of social acceptance. It may be dynamically related to some real or imaginary physical anomaly or fragility, as for instance a sense of personal repugnance, or an inability to measure up to normal expectation in some essential activity.

Conversely, the delinquent may have felt a need to exploit a "powerful" muscle; a "frame" the girls fall for; or a "benevolent" face. Again there may be no such physical factor involved. In all instances, however, except where the mind is pitiably feeble or insane, there is present an individual and a social value. The really big questions have to do with these personal and social values. They are not questions of poverty *per se;* or of specific amounts of formal education; or eating habits, or recreation, or organizational membership, or sports, or toiletries, or specific gravity, or muscle. Anyone who seriously believes that juvenile delinquency can be "deadlocked" by a concentration of attention on these things is, in my judgment, not simply barking up the wrong tree, he is hunting on the wrong reservation.

I am not saying that the presence or absence of any of these things would prevent delinquency. I am simply saying that, of themselves, they are not causes of delinquency. It is the value that counts in behavior. This, it is, that gives the individual his sense of need. The value with which I am concerned here is not inborn, it is derived through experience, and most of all through social experience.

The Bad and the Good

Wretched poverty is *bad;* illiteracy is *bad;* a shabby look is *bad;* orphanage is *bad.* In general, these things are *bad* in any place where the release of native capacity for individual excellence and enlightenment is in itself *good.* But mere release without direction can be a very dangerous thing, especially for children. Direction is not in the cold statistics of income, church membership, family security, club affiliation, height and weight ratios, muscle growth, high school registrations, toilet training or *oedipus complexes.* Look around: Does one think of a time when more of this nation's magic economy was expended for the release of children? Were they ever fed better, housed more comfortably, clothed so well, worked less, sent to school more, had more competently trained teachers, warmer schoolhouses, bigger play grounds, more formidable arrays of teaching aids and equipment, and more specialized attention to their individual needs.

I am not objecting to these things. Certainly some of them have made children hear better, see better, breathe better, smell better and know better about more things than their forebears of a half century ago. But they have not made them more law abiding. Some experts have disputed this and have argued that the delinquency record just looks bigger because more of them are caught. Then for a clincher they may dig up a "hell cat" or two from their own childhood associates, and try to throw you with the question: "What if these rascals had been caught?"

There is an element of truth implied in that question. Whether a bad boy is caught does make a difference. These young smalltown ruffians in an earlier day were caught. They were given unofficial treatment. It was effective too. It was administered from the heart. It went

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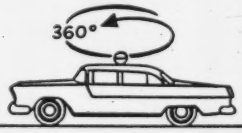

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to the seat of the trouble. It had the backing of the entire community. It is this ". . . from the heart . . ." and ". . . the backing of the entire community" that really counts. For it is this that gives a child a sense of security; the sureness that he will not be "thrown out" or transferred when he violates a rule.

A Member of the Community

After the "treatment" in this homogeneous community he could forget his deviltry for a time at least. He was anchored. This small monolithic community was for him in childhood a relatively closed system. He was thus in fairly intimate contact with his own world. This little world had its standard obligations and its judgments. These he shared. This sharing the common life gave him endless anchorage points: family, church, school, field, street, wood, feast, hay ride. Things were relevant. They held together. There wasn't a whale of a lot to be against. So the child's conscience was stacked on the *for* side. He never heard about a ". . . tension forger" a ". . . bi-sexual thief" or an "*oedipus* murderer." In this little bracketed world there were no real experts; but with all its dinginess it was not without the practical arts. Pride was kept sensitive and usable. The keen eye, the strong muscle, the swift foot; these were the gifts of Heaven. Heavens requirements were simple: an eye for the blind; a muscle for the infirm; a foot for the aged and the frail.

This felicity of the elders for turning juvenile pride to worthy ends had no "out-of-bounds" within the community. Some task well done; some little word well spoken: and the poor trapper's son returned to the swamp's edge with a beam on his face and a lantern in his heart. The last "court" had spoken. He was worth having around.

I have tried to suggest that juvenile character here was structured out of a community "compact." It was not a perfect "compact." Wasting toil was the necessity of some. School time was short. Communicable diseases were periodically a "sword of Damocles." But here we are talking about keeping children from becoming criminals. We are not talking about physical well-being; economic achievement, or formal education. I am trying to say that the grain of individual character tends to reflect the grain of the culture in which it is structured. In this at least our monolithic society had a pretty smooth grain.

From this point of view modern delinquency, as it apapears in our courts, is largely a product of our incongruous social climate from which the child gets his cues for living. In many instances the child sees adult morality as a mere contingency; or an accessory to something else. It may be something to take, something to smoke, something to drink, something to eat or something to sit on. He may watch the reputations of men he never knew hammered to pieces by other men he never knew. Week by week he sees literally thousands of dollars given away to ordinary looking pople for remembering a name, a number, a song, or a line. He feels the weight of mobilized opinion. The little man weighs himself in a mirror; sizes up the drab room where he sleeps, and turns to contemplation. Some of the more frenzied of these young outlaws have come from respectable and very wealthy homes. With inordinate funds at their disposal and no obligations they have become insensitive to every legitimate allurement. Their corroded nerves require exotic stimulators. Without a conscience these often go in for the grotesque and the morbid.

Some years ago the Harvard historian, Crane Brenton, told a story which I think has a point here. He was observing a small boy, six or seven years of age, trying to feel his way into the conversation of a group of adults, one of whom was the boy's own father. Finally when the father made a reference to some incident of an earlier year the boy, waiting for a chance to wedge in, said that he didn't remember the incident at all. The father explained to the boy that he couldn't possibly ". . . remember what happened then, because," said the father, "that was before you were born." Then the father added: "That was before you were even conceived." At that last word, relates Brenton, the boy's eyes brimmed with

tears. His face took on an emptiness as if suddenly, and for the first time, he had been made aware that once he didn't belong anywhere. Before he was "born"? "Yes." He could take that. But before he was ever "conceived": that was too much for his trusting mind. That put him outside the cosmos. He had once been utterly alone.

Delinquent Behavior Is Real!

I have no desire to sentimentalize delinquent behavior. It is real. It must be approached with insight and action on a high level. Yet, anyone who has been able to penetrate the motivational content of some modern delinquents, must surely know that they, at some time or other, have felt lost from any permanent cultural *"cosmos."*

I am trying to say that character doesn't just happen. It is not something that people are born with. It is not something built into a personality like a radio is built into a television set. Character is derived from experience and the process begins early. What is more, juveniles do not necessarily copy the behavior of their elders. They may or they may not do so. The adult idea that it is always so evolved in another social time; a time when elders behaved pretty much alike with reference to moral values; when they expected the children to simulate their behavior.

In modern society, as then, children generally play the roles they are expected to play. Juveniles may be cruel, inconsiderate, ungracious; or they may be kind, loving and thoughtful; not necessarily because these traits are exhibited by the elders, but because this kind of behavior brings more reward, from the juvenile's point of view, than a different kind of behavior. It is the juvenile's point of view that counts with the juvenile. Some juveniles I have known have shown utter amazement when suddenly confronted with a demand to act in the larger social interest, or to meet a social obligation.

In the homogeneous community of which I speak the language of adulthood was rarely divorced from action. The child did not have to wait long for action time. Today the predatory gang is a promise of action. In it reality comes to life. Here personal attachments are formed; traits of the adult underworld are acquired; cliches, stereotypes and a criminal argot are learned. These are the formative years. Here one often finds expectation with little sense of obligation except to the gang. Here is disdain of the law.

Gleuck Sample

Sheldon and Eleanor Gleuck have presented a stark cluster of physicopsychological traits found in a group of juvenile delinquents.[1] There were five hundred juveniles in the sample. This picture drawn by the Gluecks and their associates is the most comprehensive and curious yet published, under the long list of titles on the subject of juvenile delinquency. The authors have made it easy to look at their material in what might be called its component elements. Looked at in this way, the meaning of our complex social life in the unfolding of delinquent behavior seems inescapable.

The delinquents as a whole, for instance, showed a strong tendency to present a ". . . solid, closely-knit, muscular type . . . in which there is a relative predominance of muscle, bone and connective tissue. . . ." Well, it would indeed be difficult to justify a belief that this is, in itself, a pernicious linkage of bodily characteristics. Surely such combinations prevailed in individuals living in earlier and less complicated social environments. They were not, however, associated with recognized patterns of delinquency and crime. There were "bad" boys. They were lean and fat; tall and short. They had round shoulders, and they had square shoulders. They had prognathous jaws and straight jaws. They represented every physiological type born to the *morés* of the community. They gathered from all directions. They sometimes moved *en masse* upon the neighbors' ducks and apple orchards. They roamed the fields, the village streets. They haunted the "by-ways and hedges" for miles around. Rarely, indeed, was one ever lost. The charac-

[1] *Unraveling Juvenile Delinquency*, New York, 1951.

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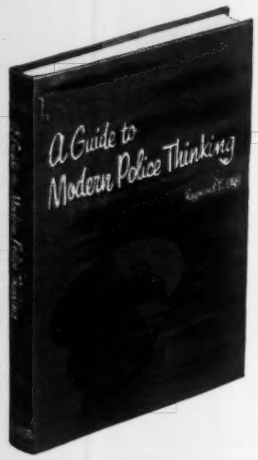

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terological fate of none was sealed by the ". . . predominance of muscle, bone and connective tissue. . . ."

I certainly have no definitive explanation of the correlations that turned up in the Gleuck study. The authors, to whom this generation is deeply indebted, do not claim to have one. I can only guess, with anyone else, that wherever and whenever delinquent and criminal behavior appears in a society as a major response pattern, individual traits already present will acquire interdependencies that they never had before. The interdependencies, like the behavior itself, are products, not explanations. After all, human behavior is a form and a consequence of a profoundly moving reciprocity process. The inner self moves into the outer world through the organs of sense. The self that went out always comes "home" again, but never unchanged. It is this endless give and take that shapes the response system—the portraiture of the boy we prejudge; the man we know. The monolithic society of which I speak, with all its short comings and goings, had few disrupting surprises for the little man behind the skin.

Coming back to the Gleuck study: since ". . . stubborn, egocentric and sensitive . . ." children may be found in the most homogeneous social groups, why were these traits not associated with juvenile delinquency patterns of behavior in the more simple societies. Whatever the answer, it must surely be somewhere in the differential effects that an urbanized social life has upon the ego claims of the growing child. When the Gleucks tell me that their delinquents were ". . . less practical, less aesthetic and less realistic . . ." than the non-delinquents, I know that the delinquents were not as prominent, on the average, as the non-delinquents in these traits, according to the test standards and definitions used and in the culture where they were found. That is all I know.

In like manner, if the average differences in ". . . subjective traits . . ." of personality revealed by the application of "projective-type" tests could be shown not to exist in the monolithic community it would argue for a personality product of urbanization found somewhat concentrated among juvenile delinquents.

We come back again to the moral consistency, the relative uniformity of demands, the early identity of the child with the practical needs of the family and the community.

Today's Child

Today's child is relatively inexperienced in the business of interpreting and allocating the conflicting elements in his world and his interpreters often present a field of conflict. Similarly, one may conjecture, " . . . that consciousness . . ." which was relatively low in the group of delinquents studied by the Gleucks, is a product of a special kind of experience. It needs the performance of dutiful acts, a recognition of social obligations, well met, and on a level that a child can understand. It may be said, also, that the "relatively high rate of conflicts with the elements in the outer environment" experienced by the delinquent group is a natural product of the child's struggle to come to terms with incompatible elements in that environment. In the light of conflicting motives, symbols, and forms of expression in the outer world, as they surely appear to a child, one might reasonably be surprised to find the inner lives of many children developing harmoniously at all.

As I have earlier tried to show, a child in every confusing situation looks for anchorage, for something sure, secure and tangible. He wants "a core about which to structure a bewildering welter of new detail." A child can stand blindness, deafness, mutism, deformities. We have all seen such children living rather happily in congenial and accommodating social environments. But there is one thing that a child can not stand! He cannot stand to remain for long unanchored.

No one really wants to return to that monolithic community of an earlier time, even if he could. It does seem to be a good time, however to consider seriously the possibility of returning to some of the common sense of that day.

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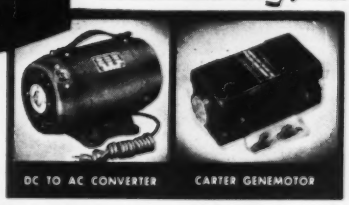

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THAT WEEKEND

In 1955, more than fifteen thousand individuals didn't return home after the pleasures of the weekend. According to figures recently published by the Safety Service of The Travelers Insurance Companies of Hartford, Conn., 15,730 Americans died in weekend traffic accidents.

Of last year's traffic fatalities, more than 20% occurred on Saturday.

The reasons for this record number of weekend highway fatalities lie in the motoring habits of the American public. Every highway in the nation had its Saturday share of that portion of America bound and determined to arrive at its weekend destination in time for dinner, even if the trip's last sixty miles must be covered in an hour flat. Too frequently, the strain and fatigue of distance driving are ignored in anticipation of ample relaxation at the journey's end.

Then, too, our highways continue to be filled with those drivers whose idea of relaxation is an extra drink or two "for the road."

Millions of dollars have been spent by Federal, state and municipal authorities in an effort to provide better and safer roads. Additional millions are spent by insurance companies and other private organizations for programs of safety education.

Nevertheless, the weekends of 1955 saw more persons killed and injured on our highways than ever before. It wasn't the fault of the road systems; it wasn't the fault of safety education campaigns. It was the fault of pleasure-bent individuals striving to go too far, too fast, for a weekend's enjoyment.

How to reduce this record total of killed and injured? What is desperately required is the immediate, unceasing cooperation of every licensed American driver.

An aroused awareness of the weekend highway peril, plus continued realization of this danger is the only way to reduce the weekend fatality figures for 1956. EDITOR.

Obesity (The Overweight Problem)

By Edward H. Rynearson, M.D.

EDITOR'S NOTE: *Motorization of American police forces has taken the police officer off of his feet and placed at his disposal the comforts of a soft automobile cushion. The resulting combination—lack of both exercise and energy expenditure tends to create personnel problems in terms of the relationship between over-weight and the health and performance efficiency of the individual officer. In this article written exclusively for* POLICE, *Doctor Rynearson presents suggestions bearing the stamp of authority which will prove of interest to both administrators and personnel.*

SEVERAL facts regarding obesity must be accepted. The first is that obesity constitutes a great hazard to national and personal health. All figures indicate that there are far too many obese individuals in this country, and well-accepted studies indicate a definite relationship between obesity and the incidence of many diseases including renal disease, diabetes and arthritis of weight-bearing joints. Dr. Ancel Keys of the University of Minnesota has recorded correlation between the amount of fat in the diet and the incidence of arteriosclerosis and heart disease. I will not engage in any discussion relative to the fact that these diseases do develop also in certain very thin individuals and that they do occur in certain countries where diets are very low in fat. However, most physicians will agree that in general obesity predisposes to ill health and is definitely related to the individual's intake of food.

Thus, the second fact which must be accepted is that all fat comes from food; fat cannot be manufactured from air and water. Recently I had a patient, a chef in a well-known restaurant, who had convinced himself and tried to convince me that he was fat because of the amount of calories he inhaled while working in the kitchen. Having eaten in his restaurant and having watched him eat at his own table, I have an idea that he gets his calories through his mouth and not through his nose.

The third fact is that there has never been a fat individual in the history of the world who couldn't lose if he followed a weight-reduction diet. Dr. Newburg, Emeritus Professor of Medicine, University of Michigan, contributed greatly to our knowledge of the problem of obesity. He studied many fat individuals whom he admitted to an area of the hospital where they had access to no food other than that provided in the diet. On at least one occasion he found that a girl who "couldn't lose" wasn't losing because her mother, supposedly the one most concerned with the girl's obesity, was smuggling food into the hospital for her daughter to eat.

A fourth fact is that almost never are any of the glands of internal secretion associated with obesity. Certainly not one in a thousand patients is obese on this basis and a discussion of these rare diseases is not necessary at this time. The only glands which seem to be involved are the salivary glands! As a matter of fact, even if glands of internal secretion are related to obesity, no "glandular treatment" would be of any help. No hormone from the pituitary, the pancreas, the adrenals or the sex glands ever has taken an ounce off anyone—and it takes an awful lot of thyroid to affect the weight of an obese individual. (I am not talking about true thyroid deficiency, myxedema.) Therefore, almost everyone who is fat is fat because he eats more than he should for the amount of calories he is "burning up."

Now let me hasten to add that I have *not* said that there is no difference in appetites, nor have I said that there is no difference in the amount of activity in which individuals engage. Dr. Norman Jolliffe, Director of Nutrition for the New York State Department of Public Health, has introduced the term, "appostat," pointing out that we have rheostats to control the flow of electrical energy, we have thermostats to set the temperature of the home and that the appostat controls the point at which individuals are willing to leave the table. He stated that this point varies greatly. One of my friends, members of whose family are very obese, is thin. When I asked him to what he attributed this state, he replied, "I do not believe that I have ever left the table other than hungry."

Nor am I unaware of the fact that a great many thin individuals burn up a tremendous number of calories with what can only be called "useless, purposeless movements." They are the "jitterbug" individuals whose arms and legs are constantly moving in one direction or another, and with each movement they, of course, are burning up calories. No published study supports the impression that these individuals have any unusual metabolic status; they simply burn up more calories than they consume.

I doubt whether there is too much argument about any

Address: Dr. E. H. Rynearson, Section of Medicine, Mayo Clinic and Mayo Foundation, Rochester, Minnesota. The Mayo Foundation, Rochester, Minnesota, is a part of the Graduate School of the University of Minnesota.

of these statements which I have made, and I am certain that most readers will agree that all fat comes from food. Certainly the frightful concentration camps demonstrated that all individuals, regardless of age or sex, would become skeletons if subjected to starvation. But a great many people insist that there must be certain animals and certain human beings who utilize food at different rates than others. They point out that farmers breed certain types of cattle and certain types of hogs to reach certain sizes. But one cannot breed obesity; one can only breed a type of animal which will have an appetite so that it eats more than it needs for the work it does. Dr. Jean Mayer and his associates at Harvard have made some important studies in which they have produced fat animals by producing certain lesions in the brain stem. These changed the animals' appetites and made them eat ravenously. If these fat animals are placed on a treadmill where they must exercise, they lose exactly as planned and, if they are put in cages and food is withheld, they will lose exactly as other animals will. *To my knowledge no one has published any study involving the use of animals or man which indicates any unusual utilization of calories.* But even if it were true that some individuals use calories differently than others, how would it apply to the individual fat man? There still would be no treatment along this line, and he still can be treated only by decreasing his calories and by increasing physical activity to the point where he will lose. It is almost impossible to increase physical activity to the point where an individual will lose weight if he continues to eat ravenously. For example, a few lumberjacks are fat, but, having lived in a lumber camp, I can remember just how many calories such men consume.

No, there is no short cut to this problem of obesity. No pills will take off fat; there are no magical exercises; there is nothing which will be effective over a period of three to six months or longer other than diet and increased physical exertion. There are anti-appetite drugs, but their effect is usually measured in terms of weeks, and the problem of obesity is usually measured in terms of many months. Of course, an individual can lose dramatically if he wishes to crawl into a steam cabinet—but all he is losing is water which he will regain about as fast as he can get to a drinking fountain. Massage is a pleasant procedure but has never taken weight off anyone.

Finally, the major reason for an increased appetite is usually nervous tension. Just as some individuals will turn to the bottle and become chronic alcoholics, a great many more individuals will turn to food. A tremendous number of obese individuals could be helped more by good psychiatry than by good dietotherapy.

So let's recognize obesity as a health hazard, let's acknowledge that all fat comes from food, let's realize that there are no short cuts, let's be aware of the fact that our increased appetite often is our response to life, and then let's get to work.

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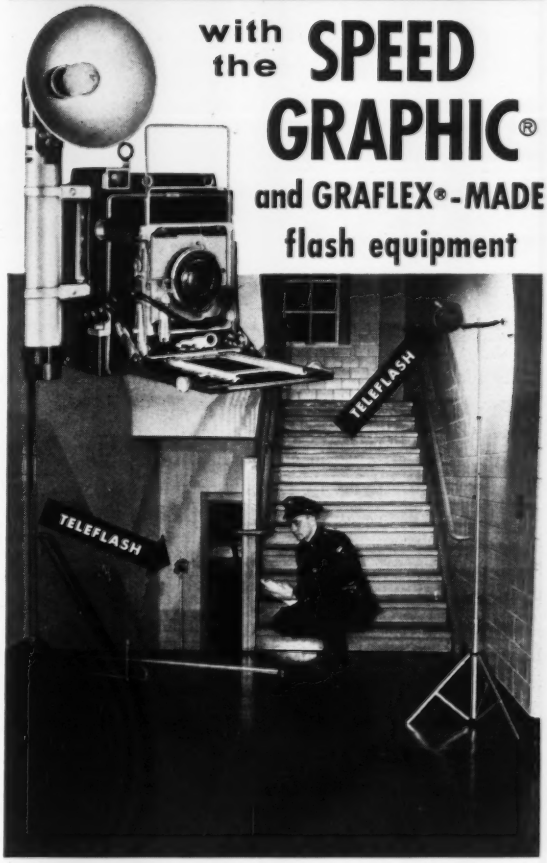

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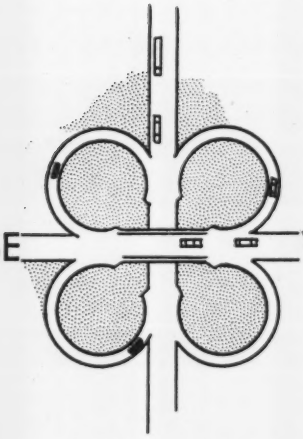

IN CASE YOU'RE TRAFFIC MINDED

THE year 1955 was one of the bloodiest on our nation's highways, with a near record of 37,800 deaths. As if this were not grim enough, our young drivers figured prominently in compiling these statistics. More than 27% of all drivers involved in fatal accidents last year were under twenty-five years of age, a greater number than ever before.

This figure, in the recently released safety booklet *Fatal Fallacies,* an annual publication of the Safety Service of The Travelers Insurance Companies of Hartford, Connecticut, emphasizes the fact that the safety record of drivers under twenty-five deteriorated sharply in 1955.

The inescapable conclusion to this is that excessive speed and recklessness are the principal faults in these accidents.

In comparison, it can be pointed out that the group of drivers over twenty-five years of age made a significant improvement in their safety record for 1955. This improvement was evident particularly in the invidence of fatal accidents, once again pointing to the speed and recklessness of younger drivers.

Young people react quickly and learn quickly. With these two factors in their favor, their driving record should theoretically be better than their elders. Fast reflexes are not enough, however, to avert a serious accident involving a recklessly driven car traveling at an excessive rate of speed.

The capacity for rapid learning must be utilized as well, in increased driver training programs, particularly in high schools.

Speed and recklessness should be the primary targets of these programs.

Vision and Driving Hazards

EDITOR'S NOTE: *These materials are presented through the courtesy of The American Optometric Association, Inc. It is undoubtedly true that few people realize the research penetration this organization has made into the relationship between vision and safe driving. The following was developed by the Association in cooperation with the American Association of Motor Vehicle Administrators. Watch for additional information on this phase of automobile driver analysis in future issues of* POLICE.

THERE are at least three factors in safe driving directly dependent on good vision:

1. People or obstructions and road signs are more likely to be seen in sufficient time to avoid accidents.

2. With good vision, there is less danger of overdriving the headlights at night.

3. A person with good vision is more at ease on the highway; hence, quick decisions are not complicated by inadequate sight.

Research has shown that persons with good vision can manipulate a car through hazards with fewer errors than those with poor vision. Therefore, the value of good vision tests, properly administered, will be shown in a lowered accident rate. Just what this rate will be cannot accurately be foreseen, but judging from laboratory experiments, it is bound to be significant. At any rate, it does not require statistics to prove that vision is just as essential to driving as the car itself.

Address: Mr. J. Harold Bailey, Administrative Director, The American Optometric Association, 4030 Chouteau Ave., St. Louis 10, Missouri.

1. Statistics on Vision

The relationship between poor vision and accidents undoubtedly will always have to be accepted on laboratory findings. Accident statistics seldom trace causes far enough to uncover visual faults, chiefly because few traffic bureaus are equipped with personnel or instruments to examine the people involved.

Dr. Alvah R. Lauer has conducted research for the Motorists' Vision Committee of the American Optometric Association for many years. After examining many thousands of persons in his driving clinic, he groups the vision of drivers into seven classifications. In this system the letters "A" and "E" have been used to rate vision in classifying visual acuity, color vision, glare, depth perception, and field of vision. Under each classification, except color vision, this table will be repeated with recommendations for standards and suggestions about those who fall below safety levels.

Following is the table of letter rating as adapted to vision. The proportions were determined through research, in which the vision of thousands of drivers was checked. It illustrates the percentages found among persons applying for a motor vehicle license.

TABLE I

SIGNIFICANCE OF LETTER RATINGS

A	5% of examinees having very superior vision
B	10% of those just below those having A rating
C+	20% of those who are slightly better than average
C	30% of those in the middle of the distribution
C−	20% of those who are just below average
D	10% of those next to the E group
E	5% of those having least satisfactory vision

This table shows that 35 per cent of the driving public is quite definitely below average. At least 15 per cent of this group have vision that renders them dangerous when they drive a car. A restricted operator's license can handle this group, especially when they know their visual inefficiency. Persons with visual deficiencies, who are carefully warned and properly corrected, may drive as well as any others. However, accident repeaters should be required to report for reexamination, which is not being done in some states.

2. Recognition

While an automobile driver may recognize a car as a car, and a pedestrian as a person, it does not follow that he truly sees them. The amount of acuity required for such limited vision as recognition may be far below the amount that is necessary for clear identification of cars and people.

Such commonplace road hazards as bridge abutments or large broken places in the pavement call for a higher level of vision than mere recognition. The same requisite of vision is needed to interpret accurately the signs and signals that are an essential part of our highway system.

As a driver moves along the road or street he must interpret the various situations and conditions as they arise. In traffic, especially, action must usually follow quickly after the first glance. Quickness and accuracy of perception depend on vision, as does reaction time. A person with good vision sees more quickly and easily. No time is lost in taking a second or reassuring look; he knows that he sees at the first glance. Drivers with lowered vision take longer to decide what to do and longer to act upon their decisions than do those with good vision.

3. Perception

Perception is the interpretation of stimuli from any sense organ. It depends partly upon perfection of the sensory channels.

Many drivers have no idea of their own visual inefficiencies. However, when tests show them what is wrong they usually are anxious to co-operate. Therefore, it should be one of the chief purposes of the license examiner to convince the driver of the need for being careful in the particular way in which he needs to be careful.

Visual efficiency contributes to driving in manifold ways:

1. It makes accurate reading of markers possible.
2. It gives the driver a feeling of security and assurance which reduces fatigue.

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3. It relieves actual physical and mental strain by making driving easier.

4. It lengthens the seeing distance, a very important factor recognized by highway and safety engineers.

5. It tends to act, automatically, with muscular control of the car, even though the driver may be temporarily distracted.

All these factors enter into the perception or recognition of danger while in traffic.

4. Reaction Time

After visual perception of any object or person there is a measurable time required for other reactions to the visual stimuli. In other words, when a driver sees a car infringing on his own right of way, there is an unavoidable space of time required for his mind to tell his arms and feet to turn the wheel and put on the brakes, or speed up out of harm's way, as the case may be.

Reaction time, consequently, is tied in closely with every aspect of safe driving. In stopping a car going ten miles an hour, the average reaction time of a driver with good vision causes him to drive eleven feet beyond the place where his eyes first saw the danger, *before* he applies the brakes. Traveling forty miles an hour, this same driver would be forty-four feet down the road before stepping on the brake; and at sixty miles an hour, the reaction time lag is estimated at sixty-six feet.

The poorer the vision the slower the reaction time, which emphasizes again why drivers should have good vision.

5. Speed

The speed each driver can safely travel, within the legal limits, should be governed by his vision, other factors, such as road and condition of the car, being equal. This is because vision is one of the most important controls that govern emergency stopping. Unless the eye sees and identifies danger far enough in advance of actual contact to stop the car, a collision is the result.

Under the very best road conditions, with good handling, dry pavement, clear weather, and unobstructed vision, a car going twenty-five miles an hour travels about sixty-two and one-half feet before it can be stopped. Under the same conditions, a car traveling fifty miles an hour covers two hundred and fifty feet before the wheels stop rolling. When the speed reaches seventy miles an hour, the driver finds himself 436 feet, or more, beyond the place where he first applied the brakes. On gravel, all stopping distances are increased one and one-half times the distance for dry pavement. Snow doubles the stopping distance, and ice requires up to five times the stopping distance necessary for dry pavement.

When the driver is handicapped by less than 20/40 vision, these stopping distances, both for clear and stormy weather, are greatly increased. The average traffic sign with five-inch letters can be read at about 280 feet by the driver who has 20/20 Snellen vision. The driver with 20/40 vision, which is the minimum that the American Optometric Association advises, must approach to within 113 feet of the sign before he can read it. The driver with only 20/50 vision must approach to ninety feet before he can see the sign clearly. Therefore, at sixty miles an hour, a driver with 20/50 vision will be ninety feet from such a sign before he sees it clearly, and under the best road conditions, he will be 227 feet beyond the sign before his car stops. For this reason, if no other, good visual acuity is a positive necessity for good driving.

TABLE II

*Stopping Distances
In Feet Under Different Road Conditions

Miles Per Hour	*Dry Concrete*	*Gravel*	*Wet Pavement*	*Packed Snow*	*Ice or Sleet*
20	42	63	70	94	210 or more
30	84	129	140	185	410 or more
40	143	223	242	322	715 or more
50	220	339	366	490	1100 or more
60	317	486	526	700	1585 or more
70	436	670	723	970	2170 or more

* Based on figures from a pamphlet on Winter Driving Hazards, by the National Safety Council.

The only safe driver is the one who can bring his car under control, after a quick identifying glance at the situation, in time to avoid trouble.

6. Road Signs

The effectiveness of road signs depends on their being seen by the driver. If the operator of a motor vehicle must drive beyond the stopping distances given in Table II before he can read a sign, its value is lost.

When the light on road signs is less than full daylight, it becomes more difficult for even the keenest eye to see them. When this natural vision drop happens, and the driver has less than 20/20 vision, he is even more handicapped.

Reduction of illumination reduces the acuity of vision. For this reason, vision specialists are careful to keep the lighting on their vision testing charts constant when measuring vision; otherwise a person with normal visual acuity may be rated lower, depending on the amount of light used.

7. Night Driving

Eighty-five per cent of the total fatalities in motor-vehicle driving each year occur at night, according to figures published by the National Safety Council. This figure was reached after the mileage was equated.

Statistics (National Safety Council) show that 58 per cent of the pedestrians killed between 6 P.M. and 7 P.M. are killed during the quarter of the year covered by the months of November, December, and January, when that hour is darker. Reduced visibility is probably one of the causes of this greatly increased accident rate for these months. Winter driving conditions continue through February and March, but the hour between 6 P.M. and 7 P.M. is again lighter, and the accident rate is decreased.

The night fatal accident rate per mile of travel is three times as high as the day. During the past two decades the speed of cars has more than doubled, which calls for the keenest of vision. Night driving demands three important visual factors: (1) the ability to see efficiently under low illumination; (2) the ability to see against glare, and (3) rapid recovery after being blinded by the glare of oncoming headlights.

8. Winter Driving

The special hazards of winter driving in relation to the driver's vision are found in the effect which storm has on visibility. Snow and sleet are hazardous in direct relationship to their density and severity. The driver's vision in one out of every five fatal accidents in 1946 was reported to be obscured.* About two-fifths of the obscurements were on the vehicle itself, in the form of rain, snow, or sleet. The driver with lowered acuity finds himself doubly handicapped by snow and sleet and should exercise greater caution by reduced speed and alertness during such storms.

The stopping distance of a car is greatly increased by highway hazards resulting from snow, sleet, and ice. From the table of stopping distances, a car traveling thirty miles an hour goes 185 feet on packed snow, and 410 or more, on ice or sleet, in comparison to the eighty-four feet required by dry pavement. While thirty miles an hour is considered a safe speed for storm by most drivers, the hazards of driving faster multiply out of all seeming proportion, until a car doing fifty miles an hour does not stop on snow until 490 feet are covered.

The lowered visibility that storm brings usually keeps the driver from seeing an approaching hazard until he is beyond the limit of the storm stopping distances. Just as in night driving, a collision is inevitable when a driver cannot see a hazard in time to stop.

School Crossings

One of the greatest needs in the traffic safety field today is for a simple, uniform and reasonably accurate technique which may be used to determine the degree of hazard at school crossings.

In order to fully understand the problem of determining the degree of hazard at school crossings, it is necessary to know what constitutes a "safe" and an "unsafe" crossing. It might be said that when vehicular traffic conditions are such that frequent and adequate gaps occur in the traffic stream which permit one or more children to safely cross the roadway, then that school crossing could be classified as safe. When traffic flows become more dense and a critical point is reached above which adequate and frequent gaps are no longer available for the pedestrian, then the school crossing can no longer be classified as safe.

Where study reveals that a school crossing can be rated in the safe classification, then the engineer should recommend such safety aids as: warning signs, pavement markings, and (best of all) the use of the school safety patrols.

Where study indicates that the school crossing is of the unsafe variety, then it becomes necessary to recommend those treatments which either artificially make the neces-

* Authority: 1947 edition *Accident Facts*.

sary safe breaks in traffic or which eliminate the hazard problem altogether. These would take the form of traffic signals, police officers, crossing guards, pedestrian grade separations or the development of a more adequate safe routing plan for the school children.

—Adapted by the National Safety Council from an article by Robert D. Dier: Determining the Degree of Hazard at School Crossings, *Traffic Engineering*, Jan., 1955.

Protecting School Children

Listed below is a select group of safety films, publications and other materials that will provide program aids for your September activities in promoting child traffic safety:

Films

The films listed below represent a sampling of the more extensive list to be found in the *National Directory of Safety Films*, a publication which may be purchased (Price: $1.00) from the National Safety Council. For local film sources, write to your state and local safety councils, State Department of Safety, the film libraries (if any) at your state colleges and universities, and the film department of your state library. When writing to these sources or to any source, write as far in advance of your film showing date as possible, indicating how you will use the film and the estimated size of the audience to which it will be shown.

Invisible Guardian (16mm sound motion) black & white or color. 18 min. TV o/k. Shows how the best protection for any child against traffic accidents is continuous education which creates safe habits in the child. These habits become an "invisible guardian" when the child is confronted by a traffic situation on his own. Carl Ross Films, 57 E. Jackson Blvd., Chicago, Illinois. Purchase, rental.

Destination Death (35mm sound slidefilm) b&w. 15 min. Proper attitude shown to be the most important single factor in traffic safety. Illustrates the "making" of an accident; also has a sequence on driver training. Inquire of your local Zurich Insurance Company agent. If you cannot locate him, write for his name and address to Zurich Insurance Companies, 135 S. La Salle St., Chicago 1. Free loan.

Priceless Cargo (16mm sound motion) b&w. 15 min. A noncommercial safety story dedicated to safe transportation of children to and from school—urging action to eliminate hazardous road and traffic conditions. Available from Superior Coach Corporation, Lima, Ohio. Free loan.

The Safest Way (16mm sound motion) b&w. or col. 19 min. Community planning of safe walking routes for young school children. Demonstrates that proper planning cuts down on child pedestrian accidents. (TV) American Automobile Assn., 17th St. at Pennsylvania Ave., N.W., Washington 12, D. C. Purchase & preview. Employers Mutuals of Wausau, Film Dept., Wausau, Wisconsin. Free loan.

School Safety Patrol (16mm sound motion) col. 16 min. Designed primarily to train school safety patrol members, this film explains need for safety patrols, describes training, outlines responsibilities. The University of Texas, Office of Visual Instruction Bureau, Austin 14, Texas. Purchase & preview; rental.

Teach Them to Drive (16mm sound motion) b&w. 20 min. Urgent message to parents and schools to teach safe driving practices to teen-agers. Shows driver training courses being used in some high schools; points out drop in accident rate resulting from such training. American Legion, National Hq., P. O. Box 1055, Indianapolis 6, Ind. Free loan.

Noontime Nonsense: Secondary School Safety Series. (16mm sound motion) b&w. or col. 12½ min. Designed to relieve a serious situation at many schools—the irresponsible and reckless use of automobiles by students during the lunch hour. A case history at a typical school shows how such a problem can be solved by student action. National Safety Council. Purchase & preview; rental.

It Can—and Does—Happen!

A common problem where there is no regulation or enforcement.
(From Young, C. B., Jr.: *First Aid and Resuscitation.*)

Film Trailers: One minute film trailers on the subject of child traffic safety may be purchased from the National Safety Council. *A Lifetime Guarantee, A Life in the Balance,* and *Your Responsibility* are available.

Outdoor Advertising

The Mass Marketing Institute, 830 North Wabash Ave., Chicago 11, Ill., has available outdoor 24-sheet posters on the monthly safety themes. These posters do an excellent publicity job. Write to Mass Marketing Institute at the above address for the name of the particular outdoor advertising company serving your area.

Newspaper Ads

Newspaper mats on the theme of child traffic safety have been especially designed for business concerns who wish to devote some of their advertising space to goodwill advertising. For complete information and ad proofs, write the Advertising Council, 425 N. Michigan Ave., Chicago 11, Illinois.

Publications

The following publications and materials covering the various aspects of child traffic safety may be purchased from the National Safety Council:

a. *Public Safety Memo No. 92—Bicycles.* Attractively illustrated booklet dealing with the various types of bicycle accident prevention. Describes three comprehensive plans for community programs. Price: $0.17.

b. *"Much To Do About Safety."* Handbook for the parent which outlines his place in teaching safety to his children. Price: 1-9 copies, $0.69. Prices on quantity orders on request.

In addition to the above materials designed for community distribution, the School and College Division of the National Safety Council publishes materials specifically designed for use in school safety education programs. Information and prices on these materials are available upon request.

Bicycle Safety Program Materials. A packet of promotional material for community use. Details on the availability and price of this packet may be obtained by writing direct to: The Bicycle Institute of America, Inc., 122 E. 42nd St., New York 17, New York.

—A current release of the National Safety Council.

Safety After Dark

Listed below is a select group of safety films, publications and other materials which will provide additional program aids for local police activities in promoting traffic safety:

Films

The films listed below represent a sampling of the more extensive list to be found in the publication, *National Directory of Safety Films,* which may be purchased (Price: $1.00) from the National Safety Council. For local film sources write to your state and local safety councils, State Department of Safety, the film libraries (if any) at your state colleges and universities, and the film department of your state library. When writing to these sources or to any source, write as far in advance of your film showing date as possible, indicating how you will use the film and the estimated size of the audience to which it will be shown.

HY-MAN of the SHIELD

The Finest in Miniature Replicas
Police and Fire Insignia
Badges
Shields
Plaques
Scrolls
Emblems
Bronze Name Plates
Medals and Medallions
Convention Ribbons
Youth Awards
Cups and Trophies
Tie Pins and Money Clips
Rings and Charms
Presentation Gifts for
Promotion and Retirements
Cards in Silver and Gold
Advertising Campaigns

Special Order Work for P.B.A.'s
City, State and Federal Gov't Depts.
17 ELDRIDGE ST., N. Y. 2, N. Y.
Canal-6-7912 Established 1926

Night and Bad Weather Driving (16mm sound motion) b&w. 11 min. Demonstrates safe practices for night and bad weather driving. (TV) Progressive Pictures, 6351 Thornhill Drive, Oakland 11, Calif. Purchase and preview; rental. ROA's Films, 840-44 N. Plankinton Ave., Pittsburgh 30, Pa. Rental.

Autopsy of an Auto Accident (35mm sound slidefilm) b&w. 10 min. Illustrates seven principal causes of driving accidents, stressing the part poor street lighting played in each. Uses statistics to show how proper illumination reduces hazards. Westinghouse Electric Corp., 401 Liberty Ave., Pittsburgh 30, Pa. Purchase & preview; free loan.

Driving at Night: Driver Education Series. (16mm sound motion) b&w. 10 min. Illustrates the hazards of night driving, explaining "overdriving" headlights, proper method of signaling intentions of passing, danger of fatigue and glare. Uses animation and live action. Suitable for high school and adult audiences. (TV) Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich. Purchase & preview; free loan.

Driving Under Adverse Conditions: Driver Education Series. (16mm sound motion) b&w. 10 min. Illustrates proper techniques to be used when driving at night in fog, rain or snow. Animation as well as live action. Suitable for high schools or adult audiences. (TV) Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich. Purchase & preview; free loan.

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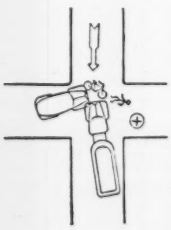
Film Trailers: The Night Flyer (16mm or 35mm sound motion) b&w. 1 min. A trailer which shouts a "NO!" to the question: "Can the speeder at night see danger in time to avoid it?" Tells how drivers can help decrease night accident tolls. (TV) The National Safety Council. Purchase & preview.

The Dead of Night (16mm or 35mm sound motion) b&w. 1 min. An investigator examines a vicious accident that occurs on a straight, dry concrete highway at night. Emphasizes the unexpected dangers of darkness. (TV) The National Safety Council. Purchase & preview.



Outdoor Advertising

The Mass Marketing Institute, 830 N. Wabash Ave., Chicago 11, Ill., has available outdoor 24-sheet posters. These advertising posters on the subject of traffic safety do an excellent community publicity job and many business firms are receptive to the idea of their use. Write to them for the name of the particular outdoor advertising company which serves your area.

Newspaper Ads

Newspaper mats on the various traffic safety themes have been especially designed for business concerns who wish to devote some of their advertising space to goodwill advertising. These mats are available in 1000-, 600-, 400- and 100-line sizes. For complete information and ad proofs, write The Advertising Council, 425 N. Michigan Avenue, Chicago 11, Ill.

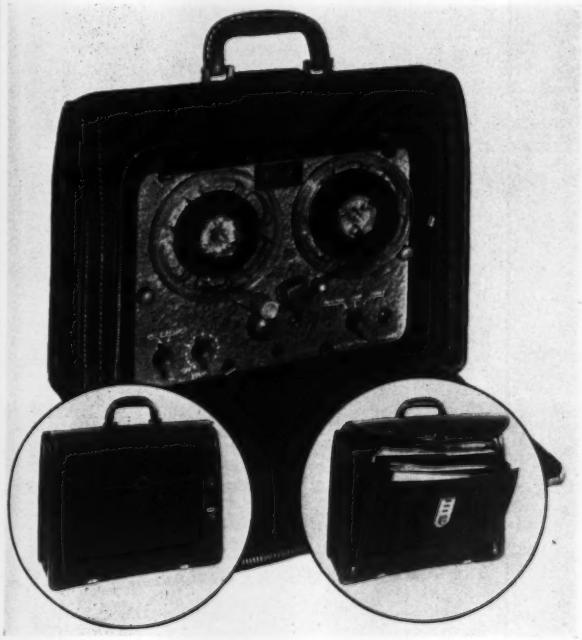
Automobile Bumper Strips

These are printed in Day-Glo red on black or blue and come in two different slogans: "Stay Alert—Stay Alive" (red on black) and "Take Time to Be Safe" (red on blue). They come in two sizes—4¼" x 15" and 1½" x 4" ("Miniatures"). These strips are easy to apply and remove, and are available with or without imprint.

—A current release of the National Safety Council.

NEW SECRET RECORDER COMPLETELY HIDDEN IN BRIEFCASE OPERATES ANYWHERE ON DRY-CELL BATTERIES

A unique idea in battery-operated magnetic tape recorders has been field tested for one year and put into full scale production by Amplifier Corp. of America. Designed for all kinds of investigative work, the new Secret Recorder achieves unusual fidelity, versatility and dependability. It is ingeniously camouflaged in an average size leather briefcase which may be opened, carried or put-down without showing the quiet recorder in operation. Enables the natural recording of comments, conversations and conferences.

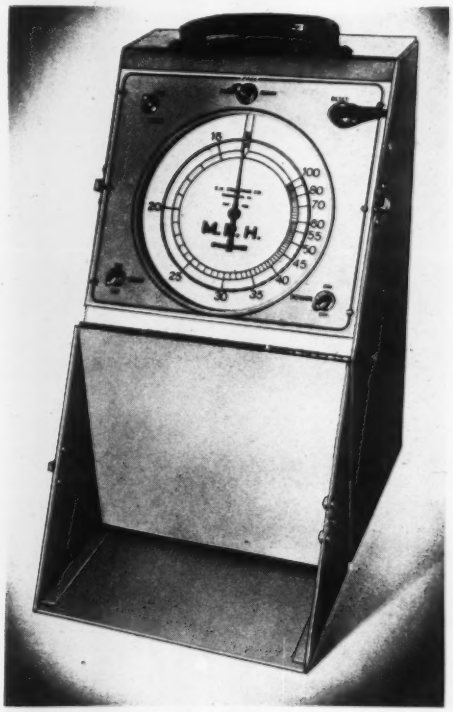


Weighs only 11¾ lbs. and measures 16 in. long x 12½ in. tall x 4½ in. wide. Extremely simple to operate. After volume control has been pre-set, no further adjustments are needed. A newly developed, highly effective constant level recording amplifier automatically equalizes the intensity of nearby and distant sounds. Whispers in a quiet area are picked up at a distance of 12 ft. and ordinary speech at 100 ft. with the sensitive, built-in microphone. May be started or stopped instantly and inconspicuously without tube warm-up delay by pressing a combination slide-lock and switch.

(Continued on next page)

STOELTING MPH SPEED TIMER*

The principle of operation is simple and easily understood by the offender and the officer. Two rubber tubes are placed across the road 88 feet (1/60 mile) apart. Each tube terminates in an actuating switch which in turn is connected to a control box 250 feet beyond the second switch. The operator at the control box can select the vehicle to be timed by manipulation of a simple control. When the selected vehicle approaches the first rubber tube, the operator positions the control switch to "start" and as soon as the front wheels strike the tube, the air pulse closes a pair of contacts, which in turn operates the timing relays, and the pointer moves around the dial. The rear wheels, or wheels of other vehicles striking the first tube after the timing has started, have no effect on the timing cycle accuracy. When the operator releases the lever switch, it takes a normal position automatically and when the selected vehicle reaches the second tube, the



operator positions the lever switch to "finish." As the front wheels strike the rubber tube, the timing cycle is completed and the speed is indicated on the dial face. The pointer can be retained in position to show the violator his speed.

The Stoelting MPH Speed Timer has advanced engineering features providing high accuracy, ease of han-

(Continued on next page)

*Manufactured by the C. H. Stoelting Company, 424 North Homan Avenue, Chicago 24, Illinois.

Secret Recorder

(Continued from page 65)

Provides continuous recording for 1½ hours at a tape speed of 1⅞ ips. using long-play ¼ in. magnetic tape. A 5 in. reel of this tape will hold three hours of dual track recorded material. Tapes play back faultlessly on all recorders operating at 1⅞ ips. Recorder has built-in preamplifier for earphone playback. The output of the unit may also be fed into any external amplifier with loudspeaker for greater playback volume.

Electrically rewinds a full reel of tape in less than two minutes. A fly-ball governor controlled electric motor assures constant speed during the full life of the motor batteries. Minimum maintenance is guaranteed by rugged ball-bearinged construction and the use of long-life brushes. Maximum fidelity at low tape speed obtained with ultra-sonic bias.

Lowdrain motor powered by five easily replaceable mercury batteries. Recording amplifier employs special miniaturization techniques to attain compactness without sacrificing efficiency. By powering the low-drain amplifier independently of the motor, a supplementary set of inexpensive dry-cell batteries will last 100 operating hours. Furnished complete with in-built microphone, earphone, batteries, reel of long-play tape and instructions.

Complete technical specifications and descriptive literature may be obtained by writing to: Ampifier Corp. of America, 398 Broadway, New York 13, N. Y.

Speed Timer

(Continued from page 65)

dling, simple operation and professional appearance.

The Stoelting MPH Timer dial is calibrated for 88 foot pneumatic tube spacing (1/60 mile). The spacing electrical cable is actually manufactured to provide a 90 foot timing distance thus giving the vehicle a favorable advantage of two feet.

Application:

A vehicle traveling at 60 MPH would normally be going at 88 feet per second ($5{,}280 \div 60 = 88$).

If a vehicle is timed and registers 60 MPH on the dial, it has actually covered 90 feet in one second. The additional two feet would represent a percentage error in favor of the vehicle of 2.2% ($2.0 \div 90 = .0222 \times 100 = 2.22\%$).

This would represent an actual vehicle speed of 1.33 miles per hour faster than indicated ($2.22 \times 60 = 1.33$) or 61.33 MPH.

Note:

The pointer on the MPH Speed Timer makes one revolution in four seconds. This establishes the following points in relation to time:

60 MPH is at the 1 second point.
30 MPH is at the 2 second point.
20 MPH is at the 3 second point.
15 MPH is at the 0 point.

Unusual??

Is there something unusual or unique about a case you have handled recently or in past months? If there is, this is an invitation to you to write up the case history and send it in to the Editor for publication. Perhaps it was a traffic accident, or a burglary, automobile theft, homicide, bunco operation, a missing persons case, narcotics, grand larceny, extortion, robbery, counterfeiting or forgery. Even a petty larceny case may assume interesting proportions.

There may have been something unusual about the modus operandi, the motive, the type of investigative techniques employed, the nature of the evidence developed in the case, an unusual or unexpected break, the geographic scope of the investigation, the laboratory facilities employed or unusual application of the polygraph and interrogation techniques.

It may be that a short item of several hundred words would tell the story, or the case might be developed into a full length feature article of from 2500 to 4000 words.

Have You??

Developed some new darkroom technique or procedure?
Originated any new ideas or methods in patrolling your beat more effectively?
Made recent improvements in the taking of police mugs?
Designed or built a new piece of police equipment?
Made recent changes in radio dispatching operations?
Introduced new record forms or other innovations in Records Division procedure?
Developed new applications of automatic tabulating equipment?
Made recent changes in entrance examination procedure?
Developed any new ideas in connection with your public relations program?
Introduced new features into your training program?
Inaugurated any new procedures in the handling of traffic violations and traffic violators?
Made any significant changes in your crime prevention program?

These may suggest other innovations, new procedures and new ideas that are paying dividends in your organization. Share them with your fellow officers throughout the field by sending them in to the Editor for publication. As a channel of communication, the columns of the Journal are expressly available for the exchange of new ideas and information.

EDITOR

33d Anniversary

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LOWEST OPERATING COST . . . Battery life and reliability is significantly improved. Dry battery replacement costs reduced by as much as 67%. Nickle-Cadmium storage batteries are lifetime rechargeable. Every component conservatively operated for longest life—top-notch performance Transmitter "I.D.C." Instantaneous Deviation Control and receiver **"PERMAKAY"** filter plus modular construction make these new portables obsolescence-free.

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